Indicators for quality in VET: European experience

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Founded in 1963 by two prominent Austrians living in exile – the sociologist Paul F. Lazarsfeld and the economist Oskar Morgenstern – with the financial support from the Ford Foundation, the Austrian Federal Ministry of Education, and the City of Vienna, the Institute for Advanced Studies (IHS) is the first institution for postgraduate education and research in economics and the social sciences in Austria. The **Sociological Series** presents research done at the Department of Sociology and aims to share "work in progress" in a timely way before formal publication. As usual, authors bear full responsibility for the content of their contributions.

Das Institut für Höhere Studien (IHS) wurde im Jahr 1963 von zwei prominenten Exilösterreichern – dem Soziologen Paul F. Lazarsfeld und dem Ökonomen Oskar Morgenstern – mit Hilfe der Ford-Stiftung, des Österreichischen Bundesministeriums für Unterricht und der Stadt Wien gegründet und ist somit die erste nachuniversitäre Lehr- und Forschungsstätte für die Sozial- und Wirtschafts-wissenschaften in Österreich. Die **Reihe Soziologie** bietet Einblick in die Forschungsarbeit der Abteilung für Soziologie und verfolgt das Ziel, abteilungsinterne Diskussionsbeiträge einer breiteren fachinternen Öffentlichkeit zugänglich zu machen. Die inhaltliche Verantwortung für die veröffentlichten Beiträge liegt bei den Autoren und Autorinnen.

Abstract

The study provides an overview of indicators about the quality of vocational education and training (VET), and outlines basic determinants of a comprehensive system of quality indicators. It considers the systemic as well as the institutional level and takes both a top-down (international frameworks of indicators) and a bottom-up perspective (practice in selected EU member countries).

The analysis is based on a detailed framework, comprising the different stages of implementation (input-process-output-outcome and context) and the three European policy priorities (employability - matching of supply and demand - accessibility). Specific performance dimensions specify the priorities (competences - structural employment dimensions - target groups). A distinction is made between indicators to assess the quality of policy making and indicators to assess the quality of provision.

There are several comparative indicators related to the policy priorities. However, they don't sufficiently cover the key aspects of performance derived from European policy documents.

Zusammenfassung

Die Studie gibt einen Überblick zu Indikatoren über die Qualität der Berufsbildungssysteme und skizziert wesentliche Bestimmungsstücke eines umfassenden Systems von Quälitätsindikatoren. Es wird die systemische und die institutionelle Ebene berücksichtigt und es wird eine „top down“ Betrachtung (internationale Indikatorensysteme) und eine „bottom up“ Betrachtung (ausgewählte EU Mitgliedstaaten) eingenommen.

Die Analyse beruht auf einem detaillierten Rahmenkonzept, das die Stufen des Implementationsprozesses (Kontext-Input-Prozess-Output-Ergebnis) und die drei Europäischen politischen Prioritäten (Beschäftigungsfähigkeit – „Matching“ von Angebot und Nachfrage – Zugangsmöglichkeiten) berücksichtigt. Die Prioritäten werden durch spezifische Dimensionen beschrieben (Kompetenzen – strukturelle Beschäftigungsmerkmale – Ziegruppen). Es wird zwischen Indikatoren zur Erfassung der Qualität der Politik und Bereitstellungsindikatoren unterschieden.

Es gibt viele vergleichende Indikatoren zu den drei politischen Prioritäten, aber diese erfassen die wesentlichen Aspekte der Leistungen unzureichend.

Keywords

Keywords: policy analysis, indicators, vocational education and training, quality assurance

Schlagwörter

Schlagwörter: Policy Analyse, Indikatoren, Berufsbildung, Qualitätssicherung

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See: http://www2.trainingvillage.gr/etv/quality/ and
http://europa.eu.int/comm/education/copenhagen/index_en.html

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Introduction

The main task of the report is to provide an overview of the available indicators that give insight into the quality of vocational education and training (VET), both at a systemic and at an institutional level. The basic factor in this connection is the existing experience: firstly from the perspective of international frameworks of indicators, secondly from the bottom-up perspective of selected EU member countries. In order to develop a useful set of quality indicators in a consistent conceptual framework one first needs to discuss feasible selection procedures for the respective indicators. In this report, the work of the European Forum on Quality of VET is taken as an important source of materials and as a point of departure for further reasoning. The author's work concerning the indicators group is included in the report. The research findings of Erwin Seyfried and his colleagues in Berlin, who made a first screening of indicators, and the reports of the Forum and its subgroups – especially the one about indicators – are utilised as an important source as well. The report of the indicators group, which was drafted by Erwin Seyfried and the author, is also used as a basic source – especially in the chapter about indicators. Besides that, the present report includes several additional analyses and other material: The reasoning about indicators was substantially extended, the selection of indicators was re-analysedafter including additional sources; the Forum's attempts are now embedded in the main international and European indicator frameworks; and an analysis of the conceptual relationships between the Forums' approach and other current policy strategies at a European level (especially the employment strategy, the lifelong learning approach, and the concrete objectives for education and training) was also carried out.

Some basic concepts of the Forums' work were integrated in the report as underlying conceptual decisions. A basic distinction was made between initial VET and continuing VET, as these two fields have developed differently and thuscomprise quite different structures. However, in view of the expected development of strategies for lifelong learning the distinct frameworks ought to be as similar as possible.

Our work is also based on a set of cornerstones for the definition of quality, which were developed by the European Forum on Quality of VET. The indicators group of the Forum owes special thanks for inputs and comments:

- The overall policy field has been broken down into three policy priorities: a) employability, b) matching of supply and demand, c) access, with particular emphasis on the most vulnerable groups.

- Four dimensions for measuring quality were defined, with a clear focus on measuring the immediate and the longer-term results of policies for quality: a) context, b) input, c) output, d) outcome.

- The main emphasis is placed on measuring quality at a systems level, but other levels (e.g., organisational) are also considered in the report– mainly in order to show the different implications and interrelations of these distinct levels.

- The measurement of quality is closely related to the definition of the goals that need to be achieved. Therefore the dimension of goals has been explicitly emphasised in the framework of quality indicators.

The status of the report must be seen as a step in the development of strategies for quality in the European context. With its bottom-up approach, and relying on the aforesaid resources, it rests to some extent on the material provided to the Quality Forum by a limited number of countries, which was then supplemented by some more comprehensive documents. However, the results must still be considered work in progress, and one key issue in the course of preparation was to think about how the material used might be capitalised on in the further development of a quality strategy based on a bottom-up approach. The relationship between existing practices and an overall framework, which is based on the agreed goals and objectives, seems to be a crucial point here.

In order to outline a path for further development, the following considerations are central to the report:

- The scope of a framework of quality indicators should be comprehensive, so that it can be used as a frame of reference or a taxonomy for assessing the comprehensiveness of existing systems. The scope can be defined by a comprehensive set of goal areas.

- The quality of existing indicators can be assessed within each goal area, with respect to data sources, definitions of indicators, etc.

- An important question regarding the development of a quality strategy concerns the relation between the diverse existing practices and a comprehensive frame of reference, which should allow for policy learning without constraining existing practices too much. Therefore, the frame of reference should allow a rather wide scope, so as to give sufficient space for learning and development. It is more important to focus on the debate about framework and selection criteria than on a small number of indicators.

- Finally, the indicators for quality within the context of the Quality Forum must also take into account other European activities aiming to improve quality in education and training (memorandum and communication about lifelong learning; concrete objectives of the education and training systems, employment strategy, group developing indicators about lifelong learning, etc.) In addition, similar activities and developments, which are currently carried out by international institutions (OECD, ILO), should be considered as well.

The findings presented in the report are by no means exhaustive. However, in bringing together the bottom-up perspective with a broad overview of the approaches and experiences at a European and international level, they go well beyond the work done by the Forum for Quality.

1. Quality

1.1. Definitions of quality

The definition and selection of indicators for quality clearly presupposes a definition of what might be perceived as quality. A substantial and comprehensive definition of quality, which all involved actors universally agree on, simply doesn't exist and will probably never be found. Nonetheless, the improvement of quality in education and training has moved up on the political agenda during the last few years, and has now become one of the three main strategic goals of European policy in that area. Working out the key dimensions of quality at a policy level and defining concrete goals in that area will be a main concern in European policy initiatives in education and training during the next decade.

So far, quality has been strongly highlighted in various policy documents as a central theme in the development of education policy strategies. However, it has remained a bit unclear whether quality might be a subfield of policies[1] or a more general policy dimension which could link different policies together.

The current perception of quality seems to include the following assets:

- Quality is related to the efficacy or efficiency of a policy or other activity, i.e. how or whether they achievestated goals or objectives . In education, quality is frequently understood as the educational providers' achievement of the expected results.

[1] Cf. West (1999) defines quality as one of nine priority dimensions at the European level, which is related to the outcomes of training.

- Quality is apparently not the same as quantity, indicating that in order to assess VET practices appropriately we need to look at more than just the growth of easily measurable, conventional quantitative variables (e.g., money spent, infrastructure provided, students processed).

- Quality seems to be associated with results, whereas quantity is linked to inputs, indicating that in order to assess VET practices appropriately we also need to find out how and to what extent the inputs are utilised rather than just emphasizing on their mere availability.

- Quality also seems to be strongly associated with the modes of provision at the institutional level of VET systems and, more concretely, with how the processes are related to results. This raises the question which traits should be measured in addition to the conventional variables.

- Quality, as an attribute of how education and training is delivered at the institutional level, is also increasingly emphasised as an attribute of VET systems, and thus the question whether and how quality could be measured by means of monitoring and evaluation frameworks at a systems' level has started to play a major part in education and training policy.

In order to find out what the enhancement of quality in VET might mean, the Quality Forumhas chosen certain themes and allocated several subgroups: quality management approaches at the provider level; self-assessment by institutions; types of examinations and certification practices. These themes mainly concern the development of procedures at a qualitative level. The development of indicators may be more or less closely related to the development of these procedures, but it could alternatively be done along a more independent quantitative path, providing information for overall assessment and monitoring at a systems level.

Clearly, the interrelations and complementarities between these themes should be taken into account, as quantitative indicators might be an important input to qualitative procedures, and qualitative procedures might produce important information bases for the improvement and interpretation of indicators. Thus – at least at the implementation level – these interrelations must be considered properly.

1.2. Measurement of quality – key ingredients

The Forum on Quality has found out that many concepts of quality and various quality control systems exist in member states and among the involved actors. Thus an overall and top-down definition of quality in substantial terms cannot serve the practical purposes of

improvement and coordination in education and training. Quality was defined as being substantially context-dependent and related to the fulfilment of goals. The measurement of quality thus includes

- the *fulfilment of goals*
- with regard to *experience* and *expectations*, and
- taking into account the relevant *context*.

One of the key questions in assessing quality is therefore the proper definition of the goals that ought to be reached by education and training systems. For the purpose of accurate measurement, that definition process must obviouslymeet certain criteria and avoid certain pitfalls.

1.2.1. Goals, "measurability trap", validity

Goals must be defined in a way that allows the substantial elements to be measured, but at the same time avoids what might be called the “measurability trap”: in this case elements of goals which are substantial but difficult to measure would fall sacrifice to elements which are not substantial but easy to measure. A good example for this trap is the distinction between formal, non-formal and informal learning, especially in adult and continuing education. Formal learning is easy to measure and can be easily implemented by policy actions. The promotion of informal learning, on the other hand, may be a more substantial target, yet it is difficult to measure and not so easilyimplemented. To some extent there may even be trade-offs between policies that promote formal learning and policies promoting informal learning. Another example is the tension between promoting selection vs. promoting learning by examinations. The “measurability trap” is obviously a problem and must be taken seriously. However, we must also note that a certain tendency to misuse that trap for the purpose of discrediting quantitative measurement exists as well. In pedagogy and education – both at a scientific and at a practical level – the longstanding conflict between quantitative and qualitative paradigms and traditions has prevailed to various degrees in most or all countries. Dedicated followers of the “qualitative paradigm” will always try to capitalize on the “measurability trap” because they more or less neglect measurability in pedagogic matters. As a reaction, followers of the other camp might be inclined to downplay the problems of measurability, thus continuing a more or less sterile and unfruitful debate.

The definition of goals must not only meet the technical criteria of measurability, but also – and primarily so – the criteria of *validity*, i.e. they mustinclude all substantial elements of what the fulfilment of a specific goal really means. In practical terms this means that we have to assess every measurable indicator that is proposed for a certain goal without losing sight of other elements which are or may be more or less hidden due to (un-)measurability problems. Taking the example of formal and informal learning, we can assess whether there is a direct relationship between these different activities – e.g., whether formal learning can be a proxy for informal learning, too – a question that can be answered by empirical analysis.

1.2.2. Levels and actors

Goals of education and training policy and practice can be defined at a *variety of levels*, and these levels are more or less linked to the *variety of actors* involved in the activities of education and training. In view of these distinctions, we must consider two imperatives simultaneously: Firstly, the different aspects and dimensions of goals are clearly of different importance at different levels of the system and for different actors, which means that they depend to a substantial degree on the specific context. We can, for instance, look at the specific goals from the viewpoint of an individual educational institution. The institutional actors will clearly be inclined to measure and present the fulfilment of their specific goals in a positive light, especially if the institution operates in a competitive context. They will neither want to present their less successful elements nor refer to the goals of other institutions. The institution's specific goals, as well as the fulfilment thereof, will also be extremely important to the internal actors, especially to the management of staff and processes. Political actors will be mainly interested in aggregate goals and measures, which may be more or less closely related to the institutional goals, also depending on the context. In cases where aggregate goals conflict with institutional goals, this conflict may turn out to be detrimental to motivation at the grass-roots level. This leads us to the second imperative, namely that besides the necessary distinctions between different levels and actors the goals at different levels as well as the different actors must also show a certain degree of coherence at the systemic level, which should to some extent be enforced by top-down mechanisms. One example for that imperative of coherence is financial accountability. At the institutional level, different actors might want to use different practices of bookkeeping in order to secure quality. However, if that diversity prevails, it can become impossible to provide transparent measures of financing at the aggregate level. Consequently, because of the crucial importance of financial information, several other aspects of quality might be impeded by this.

1.2.3. Expectations, experience, context

Another criterium for the definition of goals (besides the validity of measurement) is that the definition must allow for establishing clear relationships with expectations and experience on the one hand, and with the context on the other. The relationship with *expectations* means that the goal must be specified with regard to the results that ought to be reached within a certain time span. The same holds true for the measurement of *experience*. All dimensions, which can also be related to each other, must be adequately specified. And they must be measured at corresponding time scales. These aspects are far from being trivial, as s consistent representation of expectations and experience is still rather an exception to the rule at the policy level. For example, it often happens in the political arena that expectations are formulated with regard to the effective delivery of services, whereas experience is formulated with regard to financial or material resources, e.g. the well-known reference to class-size at schools. Considering the time scale, expectations are in many cases formulated

without clear time specifications, whereas reference to experience is frequently made to an outdated time-scale. If we want to take the context dependency of quality seriously, the information and time scale of expectations and experience must also be consistent with the information we have about *context*. In this respect we can first refer to the time scale and identify the given state of the variables in question as a measure of context. For instance, if the goal is to improve access to learning for certain disadvantaged target groups, the actual measure of access is an information about context in this connection. Secondly, context also refers to external influences which might be of crucial importance for the fulfilment of goals. Taking the access of target groups to learning as an example, the educational goals might be substantially influenced by an upturn or downturn of the economic cycle, which may have an effect on the mix of income and employment opportunities of the target groups. Thus the challenge is to identify the relevant dimensions of context, and also organise the information in such a way that the expectations and experience can be related to these context dimensions on a consistent time scale.

1.2.4. Stages of activity and achievement: input, process, output, outcome

The specification of goals and their relation to expectations, experience and context can comprise different dimensions of activity and achievement, representing different stages of fulfilment. The Forum on Quality has finally distinguished between the stages of input, process output, and outcome. The measurement of quality as the fulfilment of goals should clearly focus on the results of activities, which are strongly emphasised by the following two categories used to define that stage: *output* as the immediate result of an activity, and *outcome* as the more basic and longer-term representation of an expectation. For example, the output of a new programme would be the number of graduates, whereas the outcome would be the graduates' competencies or the economic returns to the inputs. Placing greater emphasis on the results, however, does not mean that the dimension of *inputs* ought to be neglected. This is especially true if we want to assess activities at the policy level, mainly because results largely depend on the availability of the necessary resources. However, the necessary resources should be specified in accordance with the goals that will have to be achieved – otherwise the call for resources would remain a truism. The input dimension is supposed to make this specification. Another reason why the importance of inputs ought to be underlined has to do with the time scale of measurement. The dimensions of input, process, output, and outcome do in fact also represent successive stages on a time scale: the inputs, which are in turn transformed into process items, can be observed first; soon after that the outputs start to occur, andoutcome – the most telling stage – comes last, with a certain time lag. We can of course not derive outcomes from input, but we also cannot expect any outcomes if the specified inputs have not been made. Thus inputs give important and timely information about policy efforts to meet certain goals – if they are specified correctly. The process dimension, which refers to the delivery of education and training activities is cleary very important for the practicians in the classrooms and the institutional

level. However, this dimension embraces more than all the others the complexity of the education and training process and is thus most difficult to translate into meaningful quantitative indicators.

2. Indicators

2.1. Indicators – conceptual issues

Indicators should measure the efficacy of VET supply in achieving specified goals and objectives at certain levels. In the Forum for Quality, these indicators are mainly discussed at the systems level, and to some extent at the level of providers.

2.1.1. Purpose

Indicators are usually composite statistics with some reference point included. Quality indicators can be defined as a specific class of indicators with tight requirements in terms of content and purpose (van den Berghe 1997, 11-17):[2] quality indicators, as a sub-group of achievement indicators, are related to a certain goal or objective. These goals or objectives have to be stated as a starting point.

With regard to purpose, quality indicators can be analytic, communicative or normative. These different purposes are to some extent also related to the usability of indicators at different levels and for different actors, which is why a specific indicator will not always easily serve these different purposes.

- Analytic indicators are supposed to improve the understanding of causal and/or systemic relationships involved in education and training as well as the relationships between VET and its context of wider society. Thus they will be especially interesting for the research system.

- Communicative indicators should improve the professional discourse about matters of education and training, and provide accountability to VET systems. These indicators will be interesting for practicians, policy makers, and for the wider public (as clients or consumers of services or, more generally, as taxpayers for public systems).

[2] Concerning the content of indicators, the levels of description, conception, achievement, and quality have been distinguished. Concerning the purpose, the levels of analysis, communication, and normative have been distinguished; cf. van den Berghe 1997.

- Normative indicators ought to help improve practice at different levels of the system. Quality indicators will predominantly be normative, as they are related to the fulfilment of goals. We might argue that quality indicators are the most demanding and the most complex category, as they should – in order to be effective – also at least implicitly meet the criteria of the other purposes: to serve the purpose of improvement they should to some extent be analytic, and communicative.

The following table shows some differentiations that are currently made between the different levels and actors on the one hand, and the purposes of indicators on the other hand.

Table 1: Examples of types of indicators related to different actors

Levels	Actors	Analytic	Communicative	Normative
System level	Politicians	Returns to investment compared across sectors of education and training		Fulfilment of goals of government programme to reduce early school leaving
	Practicians		Achievement in a comparative perspective	
	Social partners	Amount of mismatch between supply and demand according to business sectors		
	Wider public			Fulfilment of planned increase of investment in education
Institutional level	Management	Influence of context factors on achievement		
	Educators		Resources of institution compared to national reference	
	Local community			Fulfilment of planned increase of supply for economically disadvataged groups
	Local economy		Local structure of VET supply	
Individual level	Learners		Quality of provision	
	Educators			Fulfilment of planned increase in resources for development
	Parents		Ratio of completion of programmes in their region	

2.1.2. Technical issues: Types and sources of indicators

Some important distinctions should be made between types of indicators, respective sources, and reference points.[3] These distinctions play an important role in the process of selecting indicators from the available national, European, or international sources.

Kinds of sources: international, European, national, new sources

Considering the generation of indicators, we can distinguish several kinds of data sources:

- registered or directly reported statistical data about "objects", based on formal sources (e.g., information systems, national statistical frameworks about education and training statistics, public employment service)

- data from surveys about "objects", which are based on statements about objective entities (e.g. labour force survey, continuing vocational training survey, ECHP)

- data from professional ratings or surveys comprising opinions, assessments, evaluations concerning "objects" (e.g. data from OFSTED inspections, or from the Dutch professional inspection procedures)

- data about "subjective" evaluations (e.g., consumer satisfaction surveys, or employers' surveys)

- secondary sources, which might be based on combinations of the above mentioned types of sources (e.g., UOE-data, OECD-INES, EURYDICE, EUROSTAT VET database).

Several indicators or indicator systems may be derived by combining different sources. From a pragmatic point of view, the process of developing indicators that can be used at a European level should be based as far as possible on existing sources. Following the OECD's suggestions on how to define concrete objectives for education and training policy,[4] we could draw a distinction between European, national and new indicators, and then extend it by an additional international dimension. The sources to be used could be selected on the basis of the following considerations: As the indicators should be comparable, international and European sources should be screened first. Many parallel activities are currently under way, including the development of indicators in the field of human resources and employment. These activities are to some extent related to VET, and should thus be investigated as to their meaningfulness for assessing the quality of VET and the chosen

[3] See for an exhaustive presentation of these issues OECD 1997.
[4] See European Commission 2001.

priorities. Among these international and European activities, we can distinguish between sources that are based on cooperative development in the countries included (as, e.g., the OECD indicators) and sources which have been developed by some kind of "third party" (e.g., in the course of research projects, or by "private" benchmarking activities). The former are in fact not necessarily distinct from national sources, as these kinds of international activities are based on available national sources, which have undergone a lot of quality control procedures and other actions to improve comparability. Several national indicator systems are to some extent related to these international sources. The "third party" activities may serve as a source of experience for the development of comparable data.

Additional national sources should only be taken into consideration if we can be sure that they will contribute additional important information that is not covered by the available international and European sources. The degree of difficulty with regard to the generation of comparable data should also be taken into account. Thus national indicators derived from international or European data sources (e.g., UOE, or LFS, or key data) can clearly be developed more easily at a comparable level than indicators derived from idiosyncratic national administrative statistics, which are mostly related to complex administrative procedures. One should also take into consideration whether and to what extent these national indicator systems have been consolidated by previous experience, whether they have been generally applied, whether they have been used in pilots, or whether they are merely proposals that have not yet been in use.[5] The more the selected indicators are based on previous experience, the more easily one can assess their feasibility – indicators which have not been consolidated by previous experience should only be selected if they can clearly provide necessary additional information, which has not been covered by other, more reliable sources.

Sometimes it makes sense to use existing indicators rather than developing new ones. However, there may also be cases where this doesn't apply, as the complex underlying national procedures might make the generation of new data (e.g., by EUROSTAT surveys), possibly modelled on some excellent national sources, more feasible than trying to extend national sources and applying them to other member states.

Hard "quantitative" and soft "qualitative" indicators

In addition to quantitative indicators, which are related to the different kinds of objects and activities to be measured, we must also consider various types of "qualitative indicators" (e.g., composite ratings about prevalence/non-prevalence of objects or events, summed up to a "quantitative" measure). These are often termed as soft indicators, since the definition of

[5] The database compiled by Seyfried/Slickers has heavily relied on proposed indicators which have not been used in practice so far (especially those from the country proposals to the lifelong learning indicators group).

the counted objects or activities might include a certain variety, or the procedures of counting might be less rigorous than with hard indicators. To some extent, hard or soft indicators can be related to the different sources discussed above. Counting objects directly is often deemed to provide "harder" information than statements from surveys about objects or other items from the four remaining categories (see above). However, this rather conventional view might be misleading, as the well-known example of observing long-term unemployment (LTU) demonstrates. We can count LTU on the basis of unemployment spells documented in the employment register, or we can derive this information from the labour force survey. The register data count unemployment spells according to certain administrative rules, which often interrupt the duration of unemployment by events not related to employment (e.g., training measures, or periods of illness). Information obtained by surveys, on the other hand, might be biased because of memory problems (making it softer than register data), but the duration of unemployment spells can be assessed more validly than by administrative rules (which are also different in individual member states, thus causing problems of comparability). Another aspect concerns the availability of data and the cost-benefit relation between these two kinds of sources. If there is an opportunity to extensively analyze register data at an individual level, the mentioned problems can be overcome, although this will incur costs for providing the data and for the analysis, which must be compared to the costs of surveys. If we use register data, we also need to ask how the open unemployment spells (which have distributed probabilities of periods before being ended), are treated. If these spells are included in counting LTU, the average will be markedly shorter than if they are not. The latter clearly includes additional costs.

Another aspect concerns the above mentioned "measurability trap" and, accordingly, possible trade-offs between validity on the one hand, and reliability and objectivity on the other. LTU, for istance, is easy to measure by taking the aggregate measures from the register, and the criteria of reliability and objectivity will be met if there is no cheating. However, validity will be impaired first by the aspects mentioned above. Secondly, there may be an additional problem in that the population included in the register data might exclude certain categories of unemployed (e.g., discouraged workers) which are more easily included in surveys. Especially with regard to specific information about processes, the generation of "hard" information will often need very complex data sources to meet the validity criteria, thus a greater number of "soft" ratings and subjective evaluations may in fact provide more useful information.

General statements about the pros and cons of these types of indicators can hardly be given as they will depend on how these different kinds are combined in more composite systems. So far, there seems to be a high variation among member states concerning the preferences for or the distribution of different kinds of indicators. As these types of indicators measure different aspects of quality, and also contribute to the quality of the assessment (validity, reliability, objectivity) in different ways, there are arguments for a balanced utilisation of hard and soft indicators.

2.1.3 Application and use: a systems approach[6]

2.1.3.1 Dimensions of the systems approach: context, input, process, output, outcome indicators

To be meaningful, indicators have to be included in a systemic approach. Quality indicators, as argued above, must first be related to certain objectives; we can call this *external coherence*. Secondly, they have to be related to one another, which is called *internal coherence*. If indicators are part of an internally coherent model, they can provide not only information but explanations as well. In many cases a figure that stands out in one indicator can be explained by relating another indicator to it. To make the quality dynamics in a VET system more comprehensible, there must be *a coherent framework for indicators which reflects the objectives on the one hand, and the stages of activity and achievement (input, process, output, outcome) on the other*.[7] However, there is no clear solution available for the classification of indicators according to these dimensions.[8] Instead, the classification largely depends on specific interests or perspectives.

There are several reasons why the system of VET quality indicators needs to be embedded in contextual dimensions:

- firstly, the development of VET and its results is dependent on the broader social, economic, political and cultural development of society (e.g., social cohesiveness, the economic cycle, fiscal policy and public management approaches, demographic factors)

- secondly, from a short-term and policy-related perspective, several parameters of the education and training system must be considered as contextual features which can only be influenced and changed in the longer term (e.g., the educational attainment of the population, the basic structures of the education and training system regarding the distribution of qualifications and competences or the mechanisms of delivery, the distribution of initial and continuing education and training)

- thirdly, the provision of VET and VET policy is increasingly interacting with other policy fields inside the education and training system (e.g., initial and continuing

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[6] This section is based on the indicators report of the Quality Forum, which was drafted by Seyfried, Lassnigg and Slickers, and finalised by Seyfried.

[7] This systemic view of VET has been discussed thoroughly in the context of the COST Action A 11; cf. Nijhof/Kieft/van Woerkom 2001; see also OECD 1997.

[8] E.g., the publications of OECD indicators in different years have used different classifications, or the key data publications do not use a systematic classification, which would depend on a concept of the policy process.

education and training, school-based education and enterprise-based human resource development)[9] as well as outside of it (e.g., employment policy, regional, industrial and innovation policy, policy for competitiveness),[10] which is directly reflected in the three basic policy priorities of improving employability, matching supply and demand, and providing inclusive access to training.

The development of context indicators is an integral part of the systemic approach, where it may serve different purposes. Firstly, the contextual conditions for VET policy can be controlledso as to identify the societal background conditions that might – positively or negatively – affect the results. Secondly, the structural context factors of education and training systems can serve as measures for the initial conditions, in comparison to which the effects of new policy initiatives can be assessed. Thirdly, the interrelations of other policy fields with VET can help to identify the specific achievements of VET policy as compared to broader policies (e.g., labour market or innovation policy).

As a result of the Quality Forum's efforts, a preliminary set of indicators has been adopted and structured for *context, input, process, output and outcome*. In the world of VET these different aspects are interrelated. But in order to make improvements one has to make distinctions so as to be able to analyse the different aspects separately andthen look for relationships amongst them. Differentiation by context, input, process, output and outcome has the advantage that thus the *entire cycle of VET activities* can be covered. Furthermore, it can also serve as a frame of reference for *all levels of VET*, i.e. the systems level as well as the level of VET providers, institutions and practicians. All in all, the systemic model, which is used in several policy areas,[11] provides a suitable base for the development of a coherent system of indicators for quality in VET.

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[9] These interrelations, and the need for coordinating different sections of education and training, have been strongly emphasised since the 1990s in various OECD documents about the development of systems of lifelong learning; cf. OECD 1996.

[10] This interaction between policy fields has been promoted in different ways, e.g., by the concept of the *employment system*, adopted in the EC White Book about economic competitiveness (…) and conceptually developed by the Employment Observatory Research Network (Tronti 1997), which has included the training system as an additional component into the employment system; or the concepts about systems of skills acquisition (Lynch 1994, Booth/Snower 1996, Brown/Green/Lauder 2001); or by the more recent concept of the *competence building and innovation system*, which has conceptually linked education and training systems with the innovation system (Lam/Lundvall 2000).

[11] A similar concept has in recent years become an EU-wide standard for the evaluation of Structural Fund interventions, and in particular of vocational training activities co-financed by the European Social Fund (cf. European Commission 1999).

Context indicators

Due to the fact that they are anchored in systems and regulations, VET organisations can in general not ensure attainment of the stated policy goals in isolation. Nor can VET policy be deemed responsible for achieving these on its own, since the VET system is also dependent on certain contextual factors. Economic and occupational structures, incentives and, last but not least, resources are important preconditions for the quality of VET systems, although these factors can scarcely be influenced either by VET policy or by VET institutions.[12]

A second meaning of context is related to history and development, defined as an actual baseline upon which further development must be built (i.e. qualification level of a certain population). This second meaning is especially important if the focus is on the quality of policies. In this respect, context indicators can serve as general reference data. In a time frame, they serve first as a baseline for the point of departure and for a realistic definition of policy objectives. In later stages, with the data provided by context indicators, it will be possible to prove whether and to what extent certain objectives (concerning quality in VET) have been met. For example, the proportion of vulnerable groups in a certain population (national, regional, local) is an important piece of context information, which serves as the necessary starting point for setting realistic objectives for their access to and their participation in VET. In a next step, this contextual baseline information will then allow a comparison with the actual access and participation rates achieved.

When we talk about baselines for measuring improvements, we also need to consider different levels of context indicators. Taking the example of the vulnerable groups, there are some very concrete indicators that could be measured without too much effort. However, the more general the formulation of the objectives ('influencing the economic growth rate' or 'reducing unemployment rates through VET', etc.), the greater is the need to assess the contextual factors relevant to the quality of VET. As to the selection of indicators relating to context, the main question that arises is the extent to which this dimension should be covered, and how the most demanding areas – which have been poorly covered by indicators so far – should be dealt with (e.g. the degree of mismatch, or the selectivity of systems).

Input indicators

As opposed to context-related factors, which can only partly be influenced by the VET system, input covers factors that are derived from the VET policy and can be influenced directly by (at least some of) the actors in this field. Input factors do have a direct bearing on how the VET process or VET activities are carried out.

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[12] Sometimes structural features are difficult to distinguish from the other dimensions, so a rule of thumb at the level of indicators could be to assess the magnitude and persistence of differences between systems or units.

Input indicators provide important information about the resources used to improve the quality of VET. These resources can be measured in terms of financial means or real assets (personal resources, material resources). For quality issues, it is important that input/process indicators also deliver information about the different types of resources mobilised. They might consist of different categories of personnel (teachers, trainers, managers, administrators),[13] solid infra-structural conditions (number, distribution and characteristics of sites, financial relationships, etc.),[14] and running expenses, but also of certain instruments or tools for improving quality, such as the implementation of a QM system or the training of trainers. The financial resources translate into the provision of real learning opportunities, i.e., study places. Enrolment (measured by numbers of learners) can be taken as a proxy for the study places available.[15]

It is also important to take into consideration the fact that the different kinds of input resources will have varying impacts, not only on the process but also on the output and outcome of VET provisions. Therefore, for instance, the implementation of QM approaches covering the full quality cycle could be used as a basic indicator for quality in VET, as this indicator includes to some extent input, output and outcome factors.

Process indicators

Process indicators refer to the activities that lead to outcomes and/or transform inputs into outputs. They describe the way in which VET activities take place and are thus related to the most complex systemic dimension. The process dimension and, consequently, process indicators supply important information about the utilisation of the resources that have been mobilised in order to improve the quality of VET. We can state that process indicators refer to variables, which bear a strong behavioural component, and are thus a result of the interplay of structures and activities of the various involved actors (practitioners, learners, etc.), i.e. influenced by their decision-making and their room for discretion.

The process dimension was highly regulated and controlled in the traditional bureaucratic management model in education and training systems. The current models of management,

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[13] Cf. Lassnigg 2001.

[14] OECD/CERI 1995 provides an inclusive taxonomy of items based on that dimension, Cf. also Lassnigg 2000.

[15] Here the ambiguities of the classification of certain variables by stages become clear. Basically, there is a conceptual difference between study places and enrolment, and depending on policy and practice that difference may be larger or smaller. Depending on the given perspective, enrolment can be taken as a process measure (including behavioural factors) or as an output measure related to access policies or objectives. However, information about study places is seldom available in indicator systems, thus the overall enrolment figures may be taken as proxy for study places at the input dimension. Breakdowns of enrolment by various background factors tell more about behavioural aspects, and could thus generally be classified as process factors.

which give priority to various forms of decentralized delivery of services,[16] however, have pointed to results as being the main dimension for assessing outputs.

Consequently, the importance of process indicators has declined where the purposes of accountability are concerned. In the traditional model, the delivery of processes according to the regulations was an important issue of assessment. But in the current model, which gives room for discretion to the institutions about how to achieve their goals, the significance of the process dimension has changed and the focus has been shifted to the purpose of improvement. If institutions want to learn from each other how to achieve better results, they must look closer into how the respective processes are conducted by those who are more successful. A very good example for the process dimension is the class-size debate, which has been written about and discussed for decades without ever leading to an unambiguous result about the effects of reducing the number of students per class.[17] Instead, it has been found that simple quantitative process indicators do not tell us enough about how to improve the results of schooling. The search for a telling production function of education and training has not been successful so far, and we do have to take into account additional information about how the resources are turned into outputs in more qualitative terms.

Output indicators

In recent times, the relationship between the VET system and the labour market has become more and more important, which is – last but not least – also reflected in the importance of employability and the matching issue. As a result of these trends, both the output and outcome factors of VET have lately received greater attention.

Output factors are the direct result of VET activities, and they can be influenced directly by organising the input and process of VET accordingly. Thus, for example, under the policy priority of 'employability', the acquisition of formal qualification or ICT skills by VET participants can be seen as a direct output of VET activities, meaning that the output indicators measure the direct results of the VET process.

Outcome indicators

While output is a direct result of the VET process, the outcome factors consist of results that can only partly and indirectly be related to the VET system. The outcome of the VET system covers all the indirect and long-term effects of VET activities, which are also influenced by many other factors. Successful transition to employment after completing VET not only depends on the qualifications acquired but also on other factors, such as the general

[16] Cf. EURYDICE 2000.

[17] Cf. the well-known debates about the effects of class size; Hanushek 1986, 1987, Mol/Kaiser 1994, Krueger/Hanushek 2000.

economic situation, or structural characteristics of the labour market. Similarly, the utilisation of newly acquired competences in the workplace will not just depend on these competences but also on the conditions at the workplace, or on the main organisational strategies of firms to utilise and develop their human resources. Several recent approaches and analyses have shown these complex relationships.[18]

Despite the fact that these factors have an influence on the outcome of VET activities, there is nevertheless a causal relationship between the quality of VET and such outcomes. Because of this relationship it is important to take into account the outcome of VET by means of appropriate indicators.

2.1.3.2 Indicators and feedback into the policy cycle

One should be aware that the use of a coherent set of indicators is just one small step towards improving the quality of the VET system. The essential point here is that the use of indicators should be part of *a quality cycle*, which includes monitoring and evaluation activities and finally feeds back into the policy and practice of the VET system at its different levels. A more specific method of improving practice by the use of indicators – which has gained importance first in the private sector, especially since the 1980s, and subsequently also in public policy – is benchmarking. The European Commission, in its first report about the concrete future objectives (EC 2001, 14), has proposed to think about the use of benchmarks and several other methods to exchange experience among member states.

An overall description of the policy cycle that splits the VET process into several analytical steps is given in the following diagrams. The first diagram summarizes the sketched stages of the VET process (input, process, output, outcome), and shows that these stages are relevant at different levels of the VET system. The connections and interrelations between these levels are a crucial factor regarding the governance structure of the system: (a) the degree and the mode of connection between the macro-systemic level and institutions and practicians (regulation, centralisation, autonomy of institutions); (b) the balancing of top-down and bottom-up mechanisms in the structure of control and steering; (c) the involvement of the practitioners in the overall governance process. These interrelations are also closely related to the use of indicators in the policy cycle. Especially since the 1950s and supported by the activities of international organisations (as, e.g., the OECD, or the UNESCO), the education and training systems have also gradually become more internationalised, with the result that interrelations between the national level and the international level have increased. The European integration process has also accelerated this long-term process, and especially the recent introduction of “open coordination” in the follow-up of the Lisbon

[18] See the work of SKOPE (www.econ.ac.uk/SKOPE/); for a discussion see Lassnigg 2001.

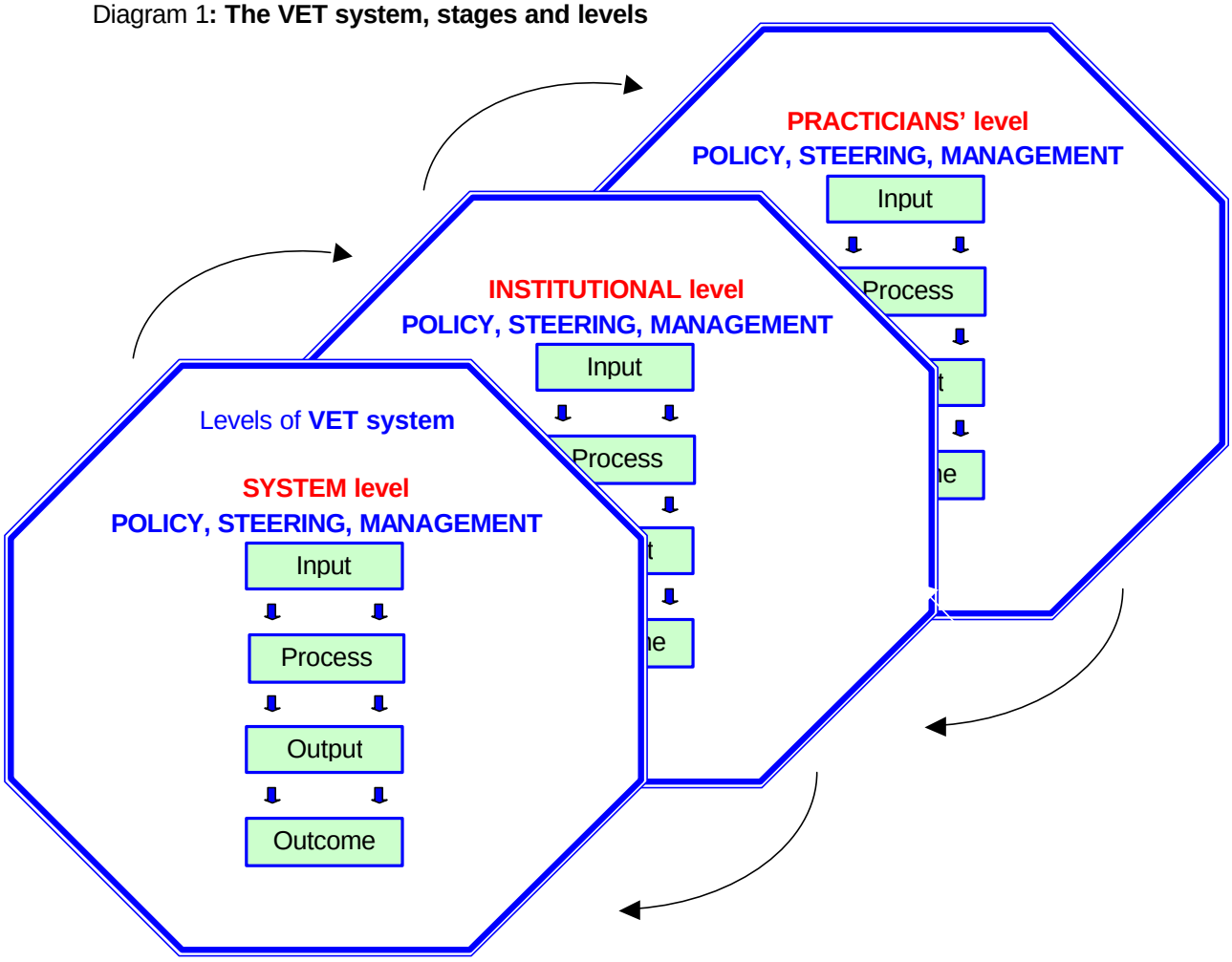
summit has added new quality to that kind of transformation of national education and training systems.

Interrelations between levels (transnational or national systemic, institutional, individual practicians')

Considering the actual functioning of education and training systems, however, the interrelations between these levels (within national systems as well as between national systems and the transnational level) have often remained weak and somewhat distorted. If we look at the use of indicators, and at their integration in more elaborate systems of monitoring, evaluation or benchmarking, we can often observe that the practice at the different levels is not integrated. Moreover, there may be conflicts or contradictions between the actors at different levels concerning the use of indicators or concerning the aforesaid systems. National statistical systems, for instance, may be developed and used without connection and feedback to the practicians' or even the institutional level. Institutions may be involved – more or less work-intensively – in the data production process for national statistics, even though the products may have little or no relevance for that level. Sometimes, especially in the case of restructuring or downsizing, the relevance may even be adversary to them. Radical deregulation or decentralisation policies may have negative consequences for the data production process at the national level, as the authority for data collection at the national or regional level may be undermined.[19] Similarly, the indicators developed at a transnational level (e.g., the OECD education indicators, or the measuring of competencies in TIMSS, IALS-ALL or PISA) may eventually be taken rather as a threat at the national level, instead of being welcomed as a means for improving policy. Building up productive and cooperative interrelations between the different levels must therefore be seen as an essential objective of the development of indicator systems.

[19] Cf. the examples given about some systems in EURYDICE 2000; Gazier (1997) has shown similar conflicts and contradictions concerning the use of human resource indicator systems in the French enterprise sector: The regulated documentation system of the Bilan Sociaux has become a somewhat formalised data collection system, which is used to some extent at the macro level. The firms, on the other hand, are using their own separate documentation systems for their human resource policy.

Diagram 1**: The VET system, stages and levels**



An important feature of VET systems is that so far the provision of initial education and training and of continuing training is more or less markedly separated in the existing systems, and that the demarcation lines between these parts are very differently structured with regard to permeability and the specific location of individual parts of VET. The strength of VET at the secondary level, and its relation to specific occupations, is a distinctive factor which leads to the inclusion of VET in initial education and may be connected to a stronger separation and weaker institutionalisation of continuing education. Another area of connection-separation is the institutionalisation of labour market training, which might be more or less closely related to the institutionalised education and training system. And yet another important distinction concerns the degree of institutionalisation of adult education, as to whether that system is part of the public education and training system or organised predominantly on the basis of the market mechanism. Finally, there may be different relations and demarcations between the formal education and training system and the human resource development structures in the enterprise sector.

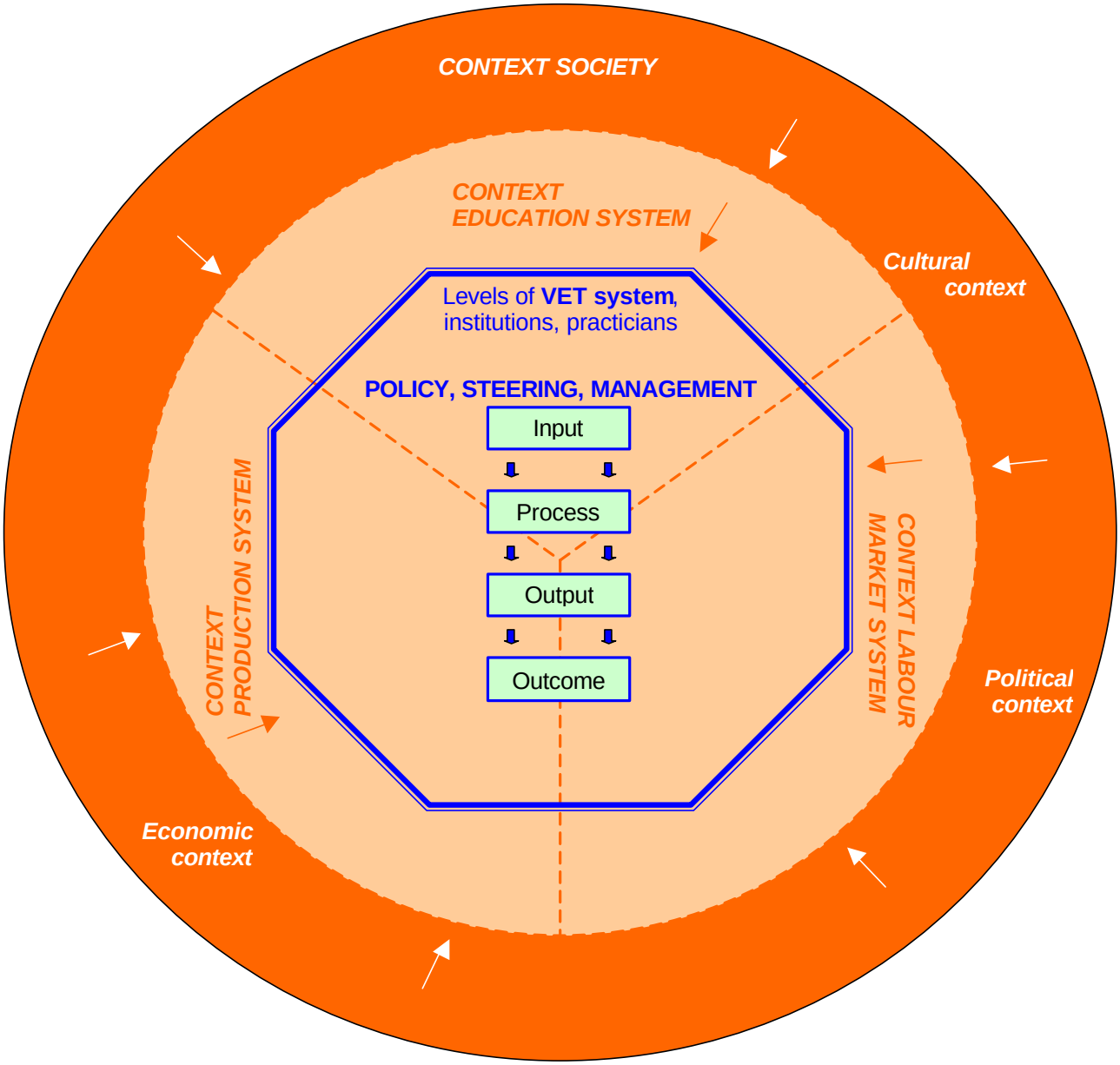
With respect to indicators, especially if interrelations between the stages of implementation and performance are at stake, the different levels have important implications as well. If anything about the institutions should be measured, we clearly need information about the institutional level. First of all, this has implications for the data sources: Administrative data will normally be based on data collection procedures at the institutional level, which are then aggregated to other regional or national levels. The provision of results about the institutional level will be unproblematic, as survey data are relatively easy to obtain at national or wider regional levels. Yet to obtain reliable information at the institutional level as well, the preconditions for the construction of the sample (size, stratification, etc.) are much higher. Secondly, there are strong implications with respect to the outcomes. The data about outcomes often come from sources which are not directly related to the education and training system (e.g., employment experience or labour market performance) and thus may not include information about the institutional level. Moreover, as contextual variables gain importance in connection with the education and training experience after leaving the system, problems regarding the attribution of the outcomes to specific institutions will increasingly emerge, or at least be stronger than if they were attributed to more aggregate units (e.g., programmes, groups of programmes, or education and training levels). Measures to overcome these problems are rather difficult, demanding more effort, coordination and costs. One is to coordinate the different kinds of register data (school, continuing training, employment, etc.), another is to produce follow-up surveys, which may be more or less tightly connected to register data. Not many information systems have met these demands so far.[20]

Contextual dimensions of VET

The VET system is located within its own specific context, which is outlined in the second diagram. In this regard, we can first distinguish the general societal framework conditions that influence VET systems but are, in contrast, themselves scarcely influenced by VET systems. We can differentiate between cultural, social, economic and political conditions (e.g., the actual economic growth rate in a given society, or the situation of the public budget and fiscal policy, or the demographic development and the basic structures of social welfare, or cultural factors such as family structures, or the general expectations for education in society, or the attitudes towards migration).

[20] See the contributions in EC (2000) Proceedings of the tenth CEIES seminar. Education and training statistics and the functioning of labour markets. Thessaloniki, May 2000. Luxembourg: EC-OOP.

Diagram 2: The context of the VET system



Secondly, we can distinguish more specific contextual conditions for VET, especially the structure of the overall educational system, which assigns a certain role to the VET, and the employment system with its main subsystems, the labour market system and the production system. The innovation system is also increasingly emphasised as an important sub-system, which spans the production system, R&D and the structures of competence building. These sub-systems are related to specific policy fields, which are in turn interacting with VET policies. In fact, a main concern of the current European policy development in accordance with the Lisbon process is the integration of these more or less distinct policy fields. Thus we

can see parallel and converging elements in the fields of employment policy, technology and innovation policy, more general economic policy for the improvement of competitiveness and of education and training policy. The VET system has its own structure, which is not only more closely embedded into its context, but is also more complex than the general education system. We can identify certain fields where the impact of these contextual factors on the development of VET is very strong, and where the interrelations are very difficult to separate:

- In the area of initial VET the strategies of youth labour market policy are a crucial contextual factor; here the cooperation of VET policy and labour market policy may be structured in different ways (e.g., concerning the degree of division of labour between these fields). This interrelation has been strongly emphasised in connection with transition.[21]

- Another contextual factor relevant in the area of initial VET, which is strongly related to the structure of general education and its relation to higher education, concerns the functional distribution between medium level upper secondary VET and the new forms of vocationally oriented sectors of higher education. In systems with strong policies aimed towards innovation and the knowledge-based economy, VET policy seems to be strongly related to innovation policy.[22]

- In the area of continuing VET the enterprise strategies in the field of HRD, which are more or less strongly separated from the institutionalised continuing VET system, are an important contextual factor as well. There are several ongoing debates about the implications of the knowledge-based economy for the enterprises' demand for qualifications and competences. Some are advocating an evolutionary path towards high skills and learning organisations, whereas others have taken more sceptical views about the enterprises' strategies. It is argued that rather severe conflicts may arise between a short-term strategy confined to prize competition and downsizing on the one hand, and long-term strategies limited to the strengthening of innovative behaviour.[23] Thus, depending on different contextual conditions concerning innovation policy, different views about demand may arise.

Firstly, the overall VET process, which is strongly influenced by the societal and the VET-specific context, consists of certain inputs. The process factors describe how these inputs are transformed into outputs and outcomes. From the perspective of quality improvement, each of these implementation stepsshould include reliable measurement procedures, which

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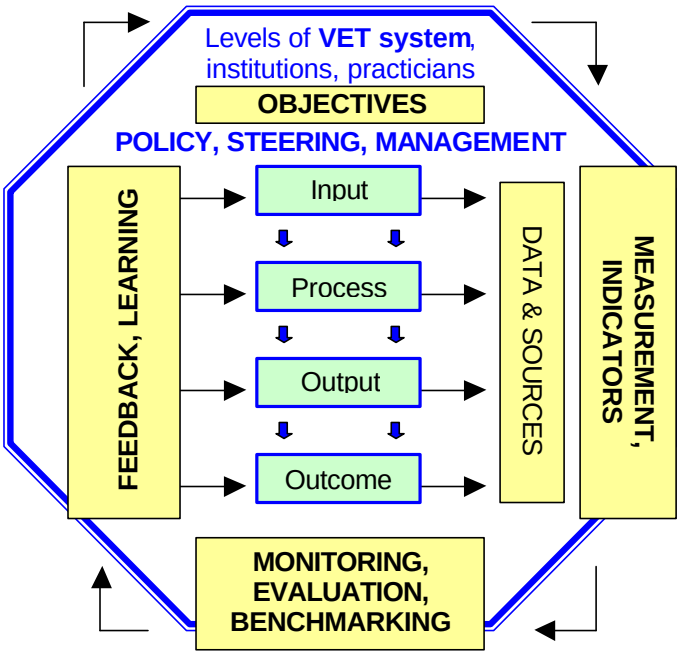
[21] Cf. Ryan/Büchtemann 1996, OECD 2000, Sweet 2000.

[22] In Finland, for example, the upper secondary VET sector seems to be substituted to a high degree by the polytechnic sector of higher education; cf. OECD-review 2002.

[23] See Lassnigg 2001, Lundvall/Borras 1999, Crouch/Finegold/Sako 1999, Brown/Lauder/Green

would ideally be fuelled into a comprehensive policy cycle. Its basic categories are outlined in the third diagram.

Diagram 3: The use of indicators in the policy cycle



The basic elements of including quality indicators in the policy cycle are the following:

- From the point of view of steering and managing the system at its different levels, it is necessary to define objectives as reference points, against which the measures are compared.

- The measurement of indicators for the different stages of the implementation process, which are based on the available data sources, represents the second element.

- As a third element we identify three types of systematic procedures which make use of the data and the indicators. *Monitoring* systems describe basic features of the implementation and performance of VET systems or institutions in a systematic and regular way. *Evaluation* approaches analyse the underlying (causal or systemic) mechanisms or specific aspects in the performance of VET more deeply. *Benchmarking* has evolved as a specific class of methods that will help improve practice by learning from the experience of other comparable institutions and/or (sub-)systems.

- Finally, feedback into the steering and management process, and the opportunity to learn for the sake of improvement is the most crucial element of the policy cycle. This element is, in the last resort, the rationale of what indicators are for.

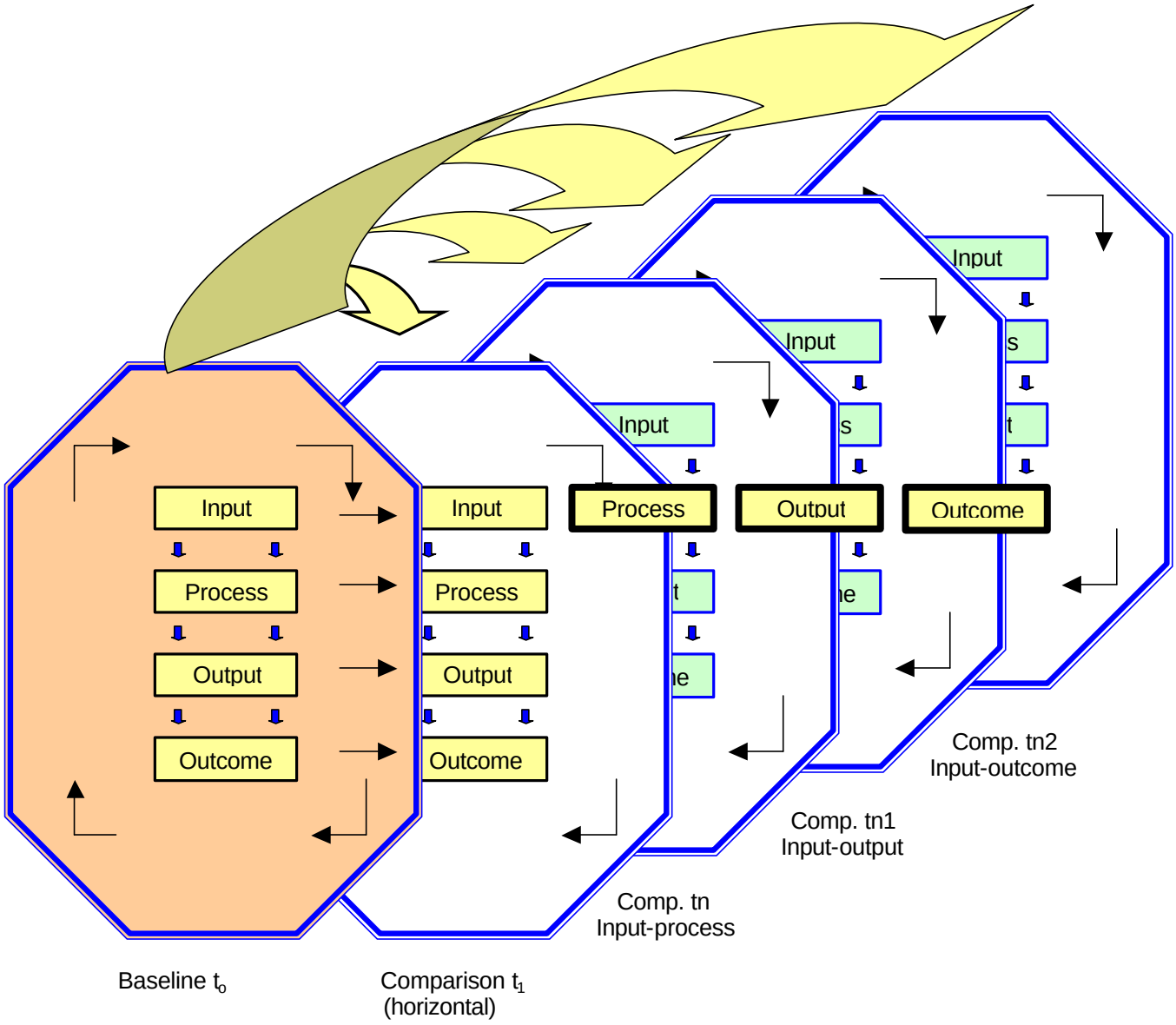
Very different techniques are available for monitoring, evaluation, and benchmarking, but the use of indicators is an element common to all of these efforts. In the European approach to policy-making in various areas the most prominent function of indicators is to test the appropriateness of policies and actions by comparing the achieved results with a baseline and with the previously set (policy) objectives. Using the information provided by a set of indicators, the changes necessary for improvement can be outlined and implemented, and the objectives and methods to achieve these changes can be redefined. The more meaningful the use of indicators, the better will the acquired information feed back into the VET system.

In order to improve the quality of VET it is important that conclusions are drawn from the results of monitoring and evaluation activities, and that these conclusions find their way back into the VET process via the policy cycle or through more specific benchmarking activities. Clearly, this feedback will primarily have to address the weak points of the process, but in principle it should contribute to the improvement of the whole system, as for instance by re-defining the objectives, re-allocating resources, changing institutional arrangements, reconsidering and re-arranging input factors, considering practical approaches to improve the outputs and outcomes of the system.

The diagram shows that a comprehensive policy cycle is rather complex. In principle, there are many ways to limit the activities to certain elements, and to leave out others. Data production can be reduced to inputs and simple process factors, which can be used in very simple ways, without producing indicators, or without using systematic monitoring systems or evaluation techniques. These restrictions will limit the scope and the alternatives for improvement.

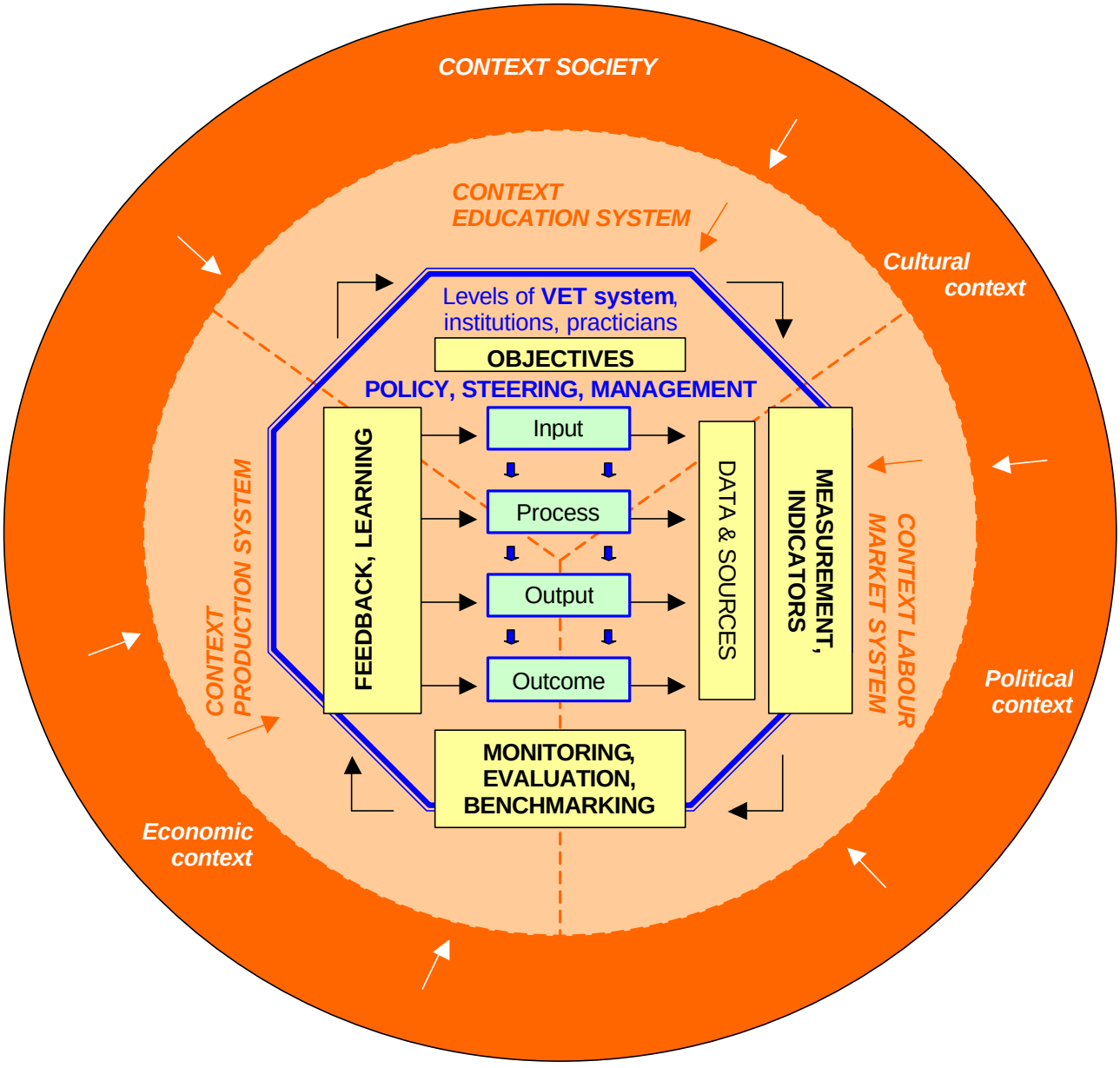
A very important aspect of a well-functioning policy cycle is that the time dimension has to be handled appropriately. The fourth diagram illustrates the various possibilities in the model. Each of the stages of the implementation process can be compared to a baseline (horizontal comparison of e.g., yearly financial inputs or the yearly number of graduates), and the results can be compared to the inputs or the process factors (e.g., input-output comparisons of graduates per EURO).

Diagram 4: The stages of VET implementation and performance and the time dimension



The final diagram summarizes the main elements of the use of indicators in the comprehensive policy cycle.

Diagram 5: Summary of the crucial elements of the use of indicators in the policy cycle



2.2. Education, training and employment in international and European indicator systems

In this section, the available and most commonly used systems of indicators about education, training and employment will be screened in order to find out how information about quality of VET might be derived from these information bases. The following systems of indicators[24] are taken into account:

- OECD education and human resources indicators: The education indicators (Education at a Glance)[25] include 33 indicators, with some subdivisions, which cover merely the education and training system at the systems level. The VET system is directly covered only by one indicator which measures the upper secondary graduation rate. Strong emphasis is laid on issues of content and achievement (IALS, TIMSS, PISA). These indicators are primarily analytic, providing important background information for policy development.

- ILO employment indicators (The 20 Key Indicators of the Labour Market – KILM)[26]: These indicators are measured world wide and cover the main dimensions of employment and the labour market. Two indicators are related to education and training, namely unemployment by educational attainment, and educational attainment and illiteracy. These indicators are analytic and also include some basic features concerning the quality of employment (wages, part-time work, underemployment) and social cohesion (poverty and income distribution).

- EU databases and reports, CEDEFOP, EUROSTAT, EURYDICE key data,[27] LFS, CVTS[28] etc.: The *Key data publications about VET*, which have been jointly drawn up by the Commission, Eurostat and CEDEFOP, are the best developed source about VET. A special VET database has been made available by EUROSTAT, which has gathered important

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[24] The reviewed systems are not exhaustive (there are additional systems available, e.g., by UNESCO or the World Bank, which are, however, strongly focused on developing countries), and the description must be somewhat sketchy, otherwise the current project in terms of space and resources would be transcended. There are also additional indicator systems about specific policy actions at the European level, e.g., the indicators concerning social inclusion, but they could not be covered by the current project.

[25] See for the 2001 edition: http://www1.oecd.org/els/education/ei/eag/;
for 2002: http://www.oecd.org/EN/links_abstract/0,,EN-links_abstract-604-5-no-no-1239-604,00.00.html.

[26] See: http://www.ilo.org/public/english/employment/strat/kilm/index.htm

[27] For an overview of materials presenting results and methodology about initial and continuing VET see: http://europa.eu.int/comm/education/leonardo/leonardoold/stat/trainingstatis/publications/publicat.html;
CEDEFOP, Ed. Young peoples' training. Key data on vocational training in the European Union (second edition of key data);
CEDEFOP, Ed. The transition from education to working life. Key data on vocational training in the European Union (third edition of key data). http://www2.trainingvillage.gr/download/publication/keydata/kdt3/2202/2202EN.html
EURYDICE: http://www.eurydice.org/Site_map/en/FrameSet.htm > Indicators and Statistics: Key data on education in Europe - 1999/2000 edition (online: http://www.eurydice.org/Documents/Key_Data/EN/FrameSet.htm); Key data on education in the European Union – 1997, 1995, 1994 editions.

[28] Grünewald/Moraal/Schönfeld, Betriebliche Weiterbildung in Deutschland und Europa. Schriftenreihe des BIBB (forthcoming).

additional information about the European VET systems on a programme basis. Other sources, especially the LFS and the UOE data, have been utilised thoroughly. The *Key data from EURYDICE* cover the overall education systems and provide additional information to the OECD indicators, especially about features of regulation and specific features, such as ICT. These indicators are also primarily analytic, and to some extent communicative in trying to bring some important features to the foreground. The LFS provides an important data source about issues of outcome and participation, and the CVTS has collected a wide range of comparative information about enterprise-related CET. The EUROSTAT task force about measuring lifelong learning (TFMLL) has given an overview and assessment of existing sources and indicators.

- EU policy indicators (structural indicators,[29] employment and NAP indicators,[30] innovation indicators,[31] competitiveness indicators[32]): These indicator systems have been developed since the end of the 1990s. Some of them are clearly normative in purpose, in trying to measure the implementation and results of certain policy targets and objectives, others are rather communicative, in trying to assist the policy formation process by providing comparative information. These indicators systems also include some general indicators about education, training and human resources, which are meant to measure the contribution of human resources to the broader economic goals. Considerable emphasis is placed on lifelong learning and on continuing education.

- EU proposals for indicators and benchmarks in education and training policies (concrete future objectives)

- EU quality indicators (initial education,[33] lifelong learning[34])

- Proposals by the European Employment Observatory

- Initiatives concerning specific sub-areas in the field of education, training and employment, e.g., lifelong learning task force, indicators about the use of ICT, [35] indicators about transition from school to work, or about human resource development.

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[29] Download: http://europa.eu.int/comm/eurostat/Public/datashop/print-product/EN?catalogue=Eurostat&product=1-structur-EN&mode=download;
see also the summary explanations: http://www.eu-datashop.de/download/EN/indika/allgm/def_ind.pdf

[30] See the yearly Employment in Europe reports, which include a set of indicators about the labour market http://europa.eu.int/comm/employment_social/news/2002/sep/employment_in_europe2002.pdf;
see also the Joint Employment Report 2002, which includes the indicators of the employment strategy in Annex 1-3; download: http://europa.eu.int/comm/employment_social/news/2002/nov/jer2002_draft_en.pdf.

[31] See the Innovation Scoreboard: http://www.cordis.lu/innovation-smes/scoreboard/; and the indicators: http://trendchart.cordis.lu/Scoreboard/scoreboard.htm

[32] See for an overview: http://europa.eu.int/comm/enterprise/enterprise_policy/competitiveness/

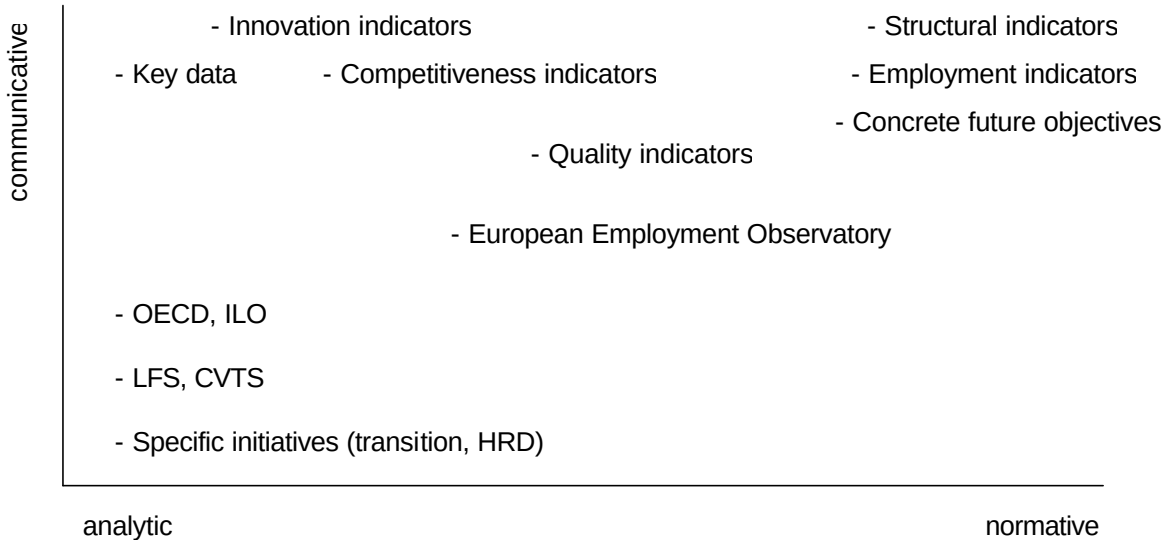
[33] Download: http://europa.eu.int/comm/education/indic/rapinen.pdf

[34] Download: http://europa.eu.int/comm/education/life/15indicators_en.pdf

We can first evaluate how these indicator systems feed into the policy cycle, and which kinds of information they produce with regard to purpose, system levels and stages of implementation and performance. Secondly, we can distinguish the indicator systems according to their coverage of VET (initial and continuing) and the different areas of context. Finally, we can try to relate these indicators to the three policy priorities.

In terms of purpose, we can allocate the different indicators systems first on a analytic-normative scale, where the normative end also to some extent includes analytic purposes (whereas the reverse is not necessarily the case). The communicative purpose is of course also in some measure included in the development of every indicator system, although it can be more or less marked, and targeted to a wider or smaller range of actors (researchers, practicians, politicians, clients and customers, the general public).

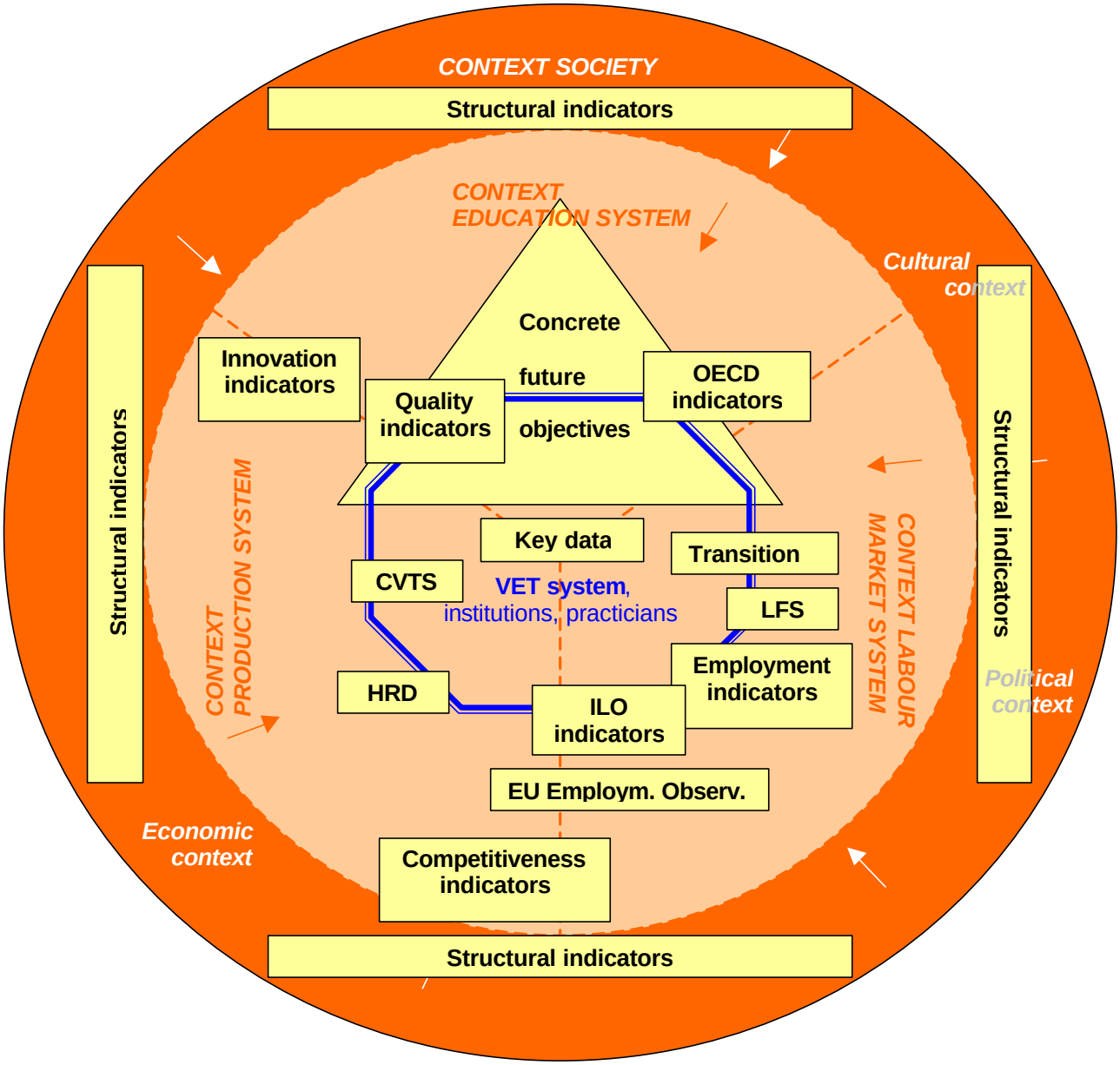
Diagram 6: Purpose of different indicator systems



We can also relate the indicator systems to the different dimensions and stages they cover. As the diagram illustrates, most existing systems of indicators mainly cover the context dimensions of VET. Even the various education indicators are strongly related to the general education and training system.

[35] EURYDICE: http://www.eurydice.org/Site_map/en/FrameSet.htm > Indicators and Statistics: Basic Indicators on the Incorporation of ICT into European Education Systems - Facts and Figures - 2000/01 Annual Report

Diagram 7: Coverage of VET and its context areas by indicator systems



The relation of indicators to the stages of implementation and performance (context – input – process – output – outcome) is not very clear so far. The groupings and classifications of the OECD indicators, for instance, vary in different editions (2000 – 2002), and the various EU indicator systems do not consistently refer to this kind of classification either.

The analysis of the existing indicator systems refers separately to the more general indicator systems, which include indicators related to education training and human resources as a first category, and to the specific indicator systems about education, training and human resources (a listing of the indicators is given in tables A1 and A2 in the annex).

2.2.1. Indicators from general indicator systems in the main European and international publications related to education, training and human resources

The analysed general sources provide an overall ("gross") number of 123 indicators, and a "net" number of 80 indicators.[36] Three quarters of the overall sum are related to context dimensions, and one quarter (31 indicators) refer directly to education, training and human resources. More than half of the specific education indicators refer to the input dimension, and about one third to the output dimension. Outcome is only covered by two indicators.

Table 2: Summary of indicators in general sources by category

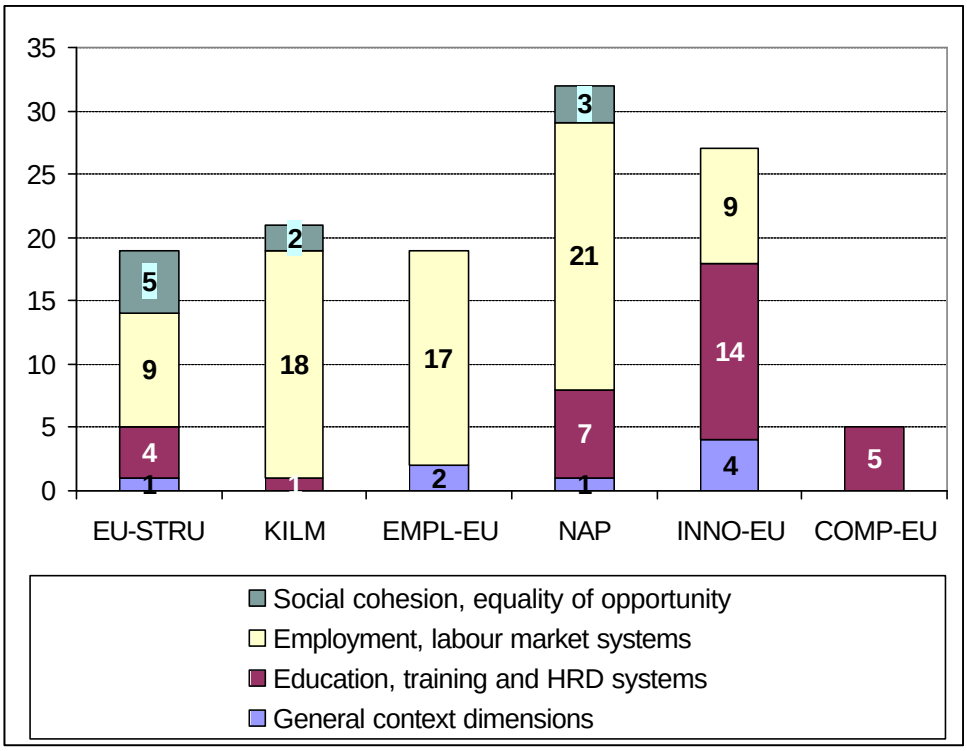
	EU structural indicators	**ILO-KILM**	**Employment in Europe**	**NAP (JER 2002)**	**Innovation trendchart**	**Competitiveness (2002 Scoreboard)**	***Sum***
General context dimensions	1	-	2	1	4	-	8
Education, training and HRD systems	4	1	-	7	14	5	31
Context	*-*	*1*	*-*	*-*	*-*	*-*	*1*
Input	*2*	*-*	*-*	*6*	*8*	*1*	*17*
Output	*2*	*-*	*-*	*1*	*5*	*3*	*11*
Outcome	*-*	*-*	*-*	*-*	*1*	*1*	*2*
Employment, labour market systems	9	18	17	21	9	-	74
Social cohesion, equality of opportunity	5	2	-	3	-	-	10
Sum	19	21	19	32	27	5	123

The diagram shows the distribution among the different categories. The largest overall number of indicators related to education, training and human resources is included in the documents of the employment strategy (32), with a clear focus on employment and labour market systems. This category partly refers to context and partly to outcome issues. The

[36] This number is the overall sum of cells in table A1 in the annex. Several specific indicators that are closely related to one another are combined in one cell of the table, so the number of specific indicators is higher; the sum is not adjusted for similar indicators in different systems (each cell of the table is counted, so it is a "gross" sum); the number of 80 different indicators ("net" sum) is indicated by the number of rows in table A1.

innovation trendchart also focuses on indicators about the education and training system (14), about half of the specific education, training and human resource indicators are from that source.

Diagram 8: Numbers of indicators in general sources by categories



The following table provides an overview of the indicators from the least three types of the afore mentioned sources. Therefore, we can also see them to some extent as “common indicators”. None of the common indicators is situated in the category of social cohesion and equality of opportunity. Most of them can be found in the category of the employment and labour market system. In this category the three sources of ILO-KILM, Employment in Europe and the Joint Employment Report use a set of similar indicators, the EU structural indicators are a bit more selective.

Only two of the common indicators refer to the education and training system: participation in lifelong learning and science and technology graduates.

Table 3: Common indicators in the general sources

EU structural indicators	ILO-KILM	Employment in Europe	NAP (JER 2002)	Innovation trendchart	Competitive-ness (2002 Scoreboard)
General context dimensions					
GDP		GDP	GDP		
Education, training and human resource development systems					
Lifelong learning participation			Participation in education and training	Lifelong learning participation *- overall* *- participation of men 25-64, not employed*	Participation in education and training
S&T graduates				S&T graduates/20-29 population *- proportion in population* *- change in employment share*	Tertiary graduates by field of study
Employment, labour market systems					
Employment rate	Employment to population ratio	- FTE ER 15-64 - ER 15-64 - ER 15-24 - ER 25-54	- FTE ER 15-64 - ER 15-64 - ER 15-24 - ER 25-54		
ER older workers		- ER 55-64	- ER 55-64	*ER 55-64: maintenance of economically useful skills among older workers*	
	Status in employment	- Self-employed	Rate of self-employment		
	Employment by sector	- Empl services - Empl industry - Empl agricult.	ER in services		
	Part-time workers	Part-time employment	Part time - voluntary - involuntary		
Unemployment rate	Unemployment	Unemployment rate	Unemployment rate		
	Youth unemployment	- Youth UE rate - Youth UE ratio	- Youth UE ratio		
Long-term unemployment rate	Long-term unemployment	Long-term unemployment rate	Long-term unemployment rate		
Labour productivity	Labour productivity	Labour productivity	Labour productivity		
Unit labour cost (ULC) growth	Unit labour costs	Nominal ULC Real ULC	Real ULC		

2.2.2. Indicator systems about education, training and human resources

The analysed sources provide an overall ("gross") number of 251 indicators, and a "net" number of 187 indicators.[37] The number of input indicators is the highest (81 indicators), those in other categories range between 34 and 54. Thus thevariety of indicators, which have undergone specific procedures to make them comparable at an international or European level, is quite plentiful.

Table 4: Summary of indicators in sources about education, training and human resources by category

	Key data (training, transition)	**OECD education indicators 2002**	**Initial education – quality indicators *Lifelong learning – Quality indicators***	**Key data, ICT data EURYDICE**	**Specific sources**	***EC benchmarks*, concrete objectives**	***Sum***
Context	4	7	8	19	11	5	54
Input	8	13	9	22	13	16	81
Financial	*1*	*7*	*2*	*4*	*3*	*1*	*18*
Provision	*5*	*3*	*3*	*2*	*9*	*7*	*29*
Personnel	*-*	*2*	*2*	*7*	*-*	*7*	*18*
Content	*2*	*1*	*2*	*9*	*1*	*1*	*16*
Process	13	9	1	6	9	5	43
Output	2	8	9	4	4	7	34
Outcome	15	2	2	-	18	2	39
Sum	42	39	29	51	55	35	251

The diagram shows the number of indicators from the different sources and their distribution among the categories of the policy cycle. Different degrees of importance have been attached to these categories in the different sources:

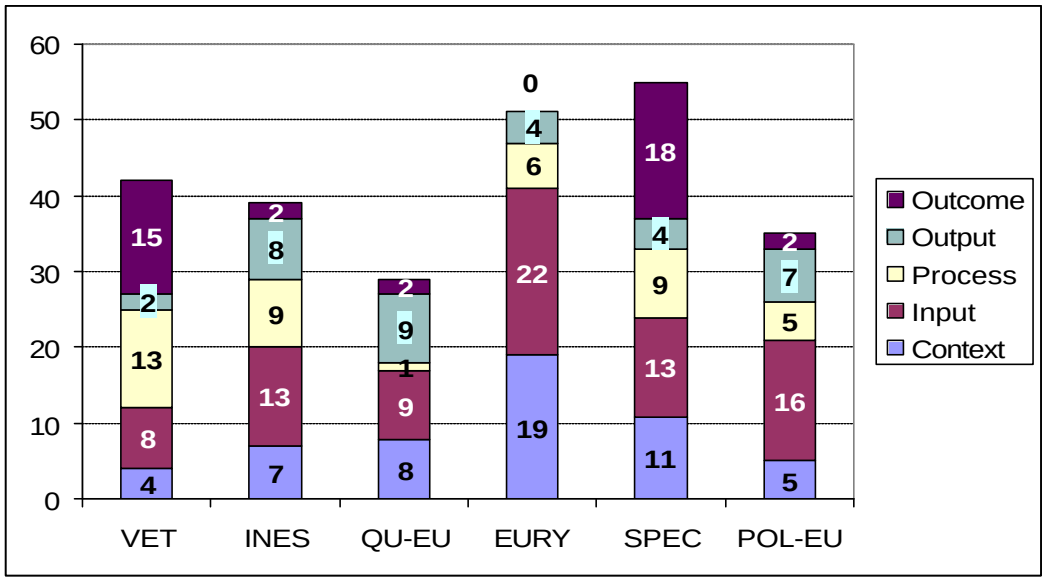
- The indicators from EURYDICE focus on context and input; input is also strongly emphasised in the EU policy indicators; the EU quality indicators stress context, input and output

- The VET data base focuses rather on outcome and process indicators

- The OECD indicators and the specific sources are also quite balanced; emphasis on outcome is weak in the OECD indicators, and strong in the specific sources.

[37] The "gross" number is the overall sum of cells in table A2 in the annex. Several specific indicators that are closely related to one another are combined in one cell of the table, so the number of specific indicators is higher; the sum is not adjusted for similar indicators in different systems (each cell of the table is counted, so it is a "gross" sum); the number of 187 different indicators ("net" sum) is indicated by the number of rows in table A2.

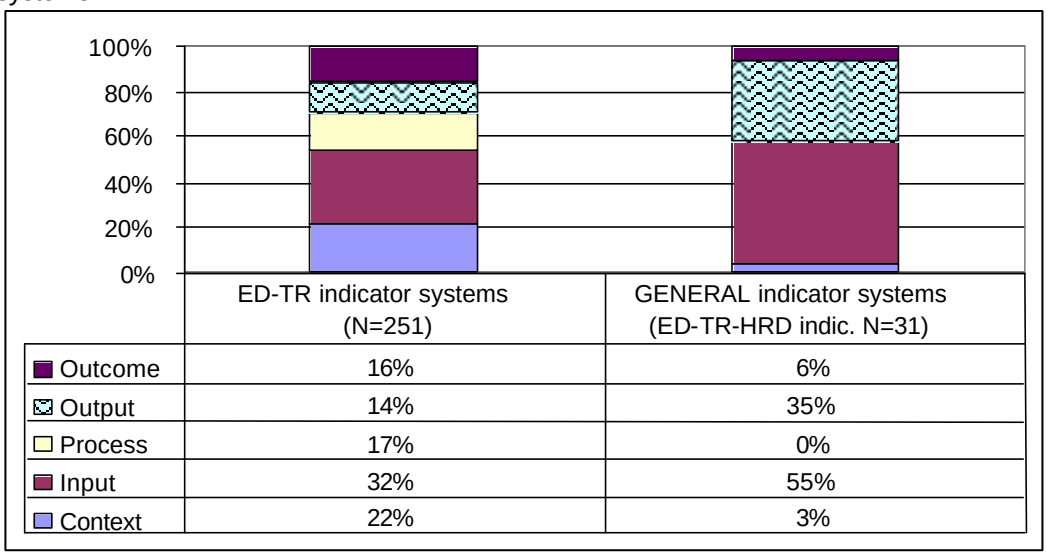
Diagram 9: Numbers of indicators in sources about education, training and human resources by categories



Only 12 of the 187 indicators are represented in three or more sources. These "common" indicators are situated in only three of the five categories: context, input, output (no process or outcome indicators are common in this definition).

The overall distribution of the indicators about education, training and human resources within the different stages of the policy cycle shows an emphasis on input and context indicators in the specialised sources about education and training, and a strong focus on input and output indicators in the general sources (see the following table).

Diagram 10: Categories of the policy cycle in education and training in the types of indicator systems



	ED-TR indicator systems (N=251)	GENERAL indicator systems (ED-TR-HRD indic. N=31)
Outcome	16%	6%
Output	14%	35%
Process	17%	0%
Input	32%	55%
Context	22%	3%

Table 5: Common indicators in the sources about education, training and human resources

Key data (training, transition)	**OECD education indicators 2002**	**Initial education – quality indicators *Lifelong learning – quality indicators***	**Key data, ICT data EURYDICE**	**Specific sources**	***EC benchmarks*, concrete objectives**
Context					
Attainment levels (ISCED) in the population - * by age groups - comparison of ISCED 3 between age groups - attainment of at least ISCED 2	Attainment levels of the population		People without upper secondary education in population - by age groups	TFMLL: People without upper secondary education in population - by age groups INVEST: Population 25-64-y by highest completed level of education (HC stock) - percentage point difference between 25-34-y and 45-54-y-olds - gender difference - educational attainment of parents	Percentage of population aged 25 to 64 having completed at least upper secondary education
	Educational expenditure/ GDP	*Educational expenditure/ GDP*		INVEST: Educational expenditure/ GDP	*Public expenditure on education as a percentage of GDP*
Input					
	Educational expenditure per student	Educational expenditure per student		INVEST: Educational expenditure per student - relative to GDP/capita	
	Availability of computers - at school - at home Students/ computer at school	Students/ computer at school	*Number of pupils/computer with internet* *- by ISCED*		
(*) Participation ISCED 3 general vs. VET	Participation in secondary education - ISCED programme destination - type of programme		Participation in secondary education, general vs VET - lower secondary - upper secondary - upper secondary by regions		

** Participation in tertiary education*	Entry rates in tertiary education	Participation in tertiary education		TFMLL: Participation rate by age in formal tertiary education	Participation in tertiary education
	Participation in CET of adult population	*Participation in ed-tr 25-64-y*		TFMLL: Participation of 30+ by attainment and gender Individuals 25+ who have received VET over past year Individuals with VET over past year to improve skills and job prospects INVEST: Employee participation in job-related training - by different groups - average duration	Percentage of the population between 25 and 64 participating in education and training (structural indicator)
Process					
None					
Output					
	Upper secondary graduation rate	Completion of upper secondary education 22-y	Completion of upper secondary education 22-y - by gender	TRANS: Apparent upper secondary graduation rates	
	Tertiary education graduation rate		Tertiary education graduation rates - by gender - young age groups	Per cent of 25-29-year-olds with tertiary qualifications	
	Graduates by field of study	*Tertiary S&T graduates/young population*	Tertiary graduates by field of study - by gender		
	Reading literacy 15-y	Reading literacy		TRANS: Per cent of 16-25-year-olds at document literacy level 4/5, 1994-5	Literacy attainment levels (PISA)
	Math literacy 15-y	Test results Math *Numeracy 15-y*			Numeracy/ Mathematics attainment levels (PISA)
Outcome					
None					

3. Goals and objectives as a basis for quality indicators – main dimensions

The roles and relationships among actors have started to change in the emerging policy model. First of all, the providers of VET are increasingly differentiated from the state and perform their services now with increasing autonomy. Secondly, the range of actors involved and participating in policies is increasing as well. In addition to that, the basic policy structures are also becoming more diverse within and between countries. As a consequence, the coordination of the various functions, the cooperation among actors, and the flows of accurate information have become more important for an effective delivery of a given policy.

Among the roles of the state in general, the following three will require special attention:

- statement and formulation of **goals and objectives** via the democratic process,

- translation of these goals and objectives into **performance measures** to be achieved,

- **monitoring** the performance measures, and feedback to the implementation process.

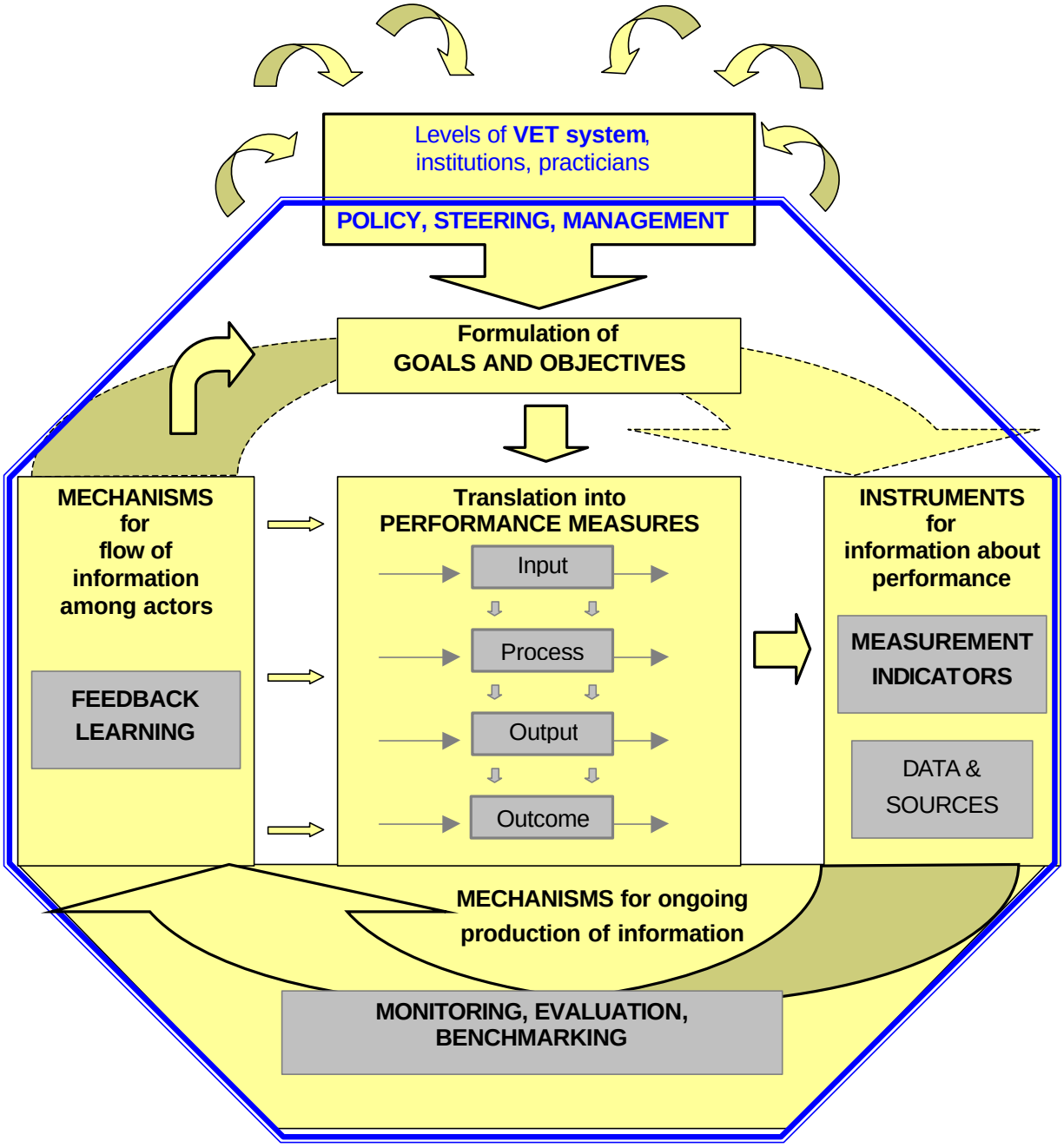
- Due to the fact that open coordination of education and training systems has become increasingly important in the Lisbon follow-up process a fourth role is now emerging and being reinforced in the EU member states.

In order to perform these roles properly, the goals,objectives, and the performance measures that need to be achieved must be formulated in terms which also allow for monitoring. This means that some kind of measurement must be obtainable. This will, on the one hand, pose some challenges to the formulation of the goals and objectives, as well as to the desired performance. The formulation must be concrete enough to allow for measurement, which is a non-trivial demand. On the other hand, it will also be necessary to have adequate instruments and systems for monitoring, which are capable of both collecting *and* transmitting information. In sum, five functions of crucial importance must be covered in order to build up effective policy mechanisms:
- formulation and statement of *goals and objectives*,
- formulation of *performance* (in terms of input, process, output, outcome) to be achieved,
- instruments for information about performance (*measurement, indicators*),
- mechanisms for *gathering (producing) the information* at stake,
- mechanisms for the *flow of information* among actors and the broader public (feedback).

Each of these functions must be taken into account properly in a given policy model, so as to allow for a proper delivery of policies. The best system of indicators will not help unless they are readily available and/or sufficiently aggregated (production), or unless they are

transmitted among actors in good time; the best formulation of goals and performance measures isn't worth much, if it is not translated into measures that allow for an assessment of how they are implemented; it is also impossible to formulate indicators if the formulation of the respective goals and/or performance measures is not sufficiently accurate.

Diagram 11: Schematic model of the five functions



Each of these functions raises some tricky questions, which have been taken into consideration in various ways by research and policy.

3.1. Defining and monitoring VET policy goals and objectives in the international and European area

The following sections address several key issues for each of the five functions, which must be solved somehow before the sketched policy model can be implemented. The considerations are based on the discourses and practices at the international as well as at the European level.

3.1.1. Formulating goals and objectives

In formulating goals and objectives we need to make a distinction between normative systems of indicators on the one hand, and analytic or communicative indicators on the other. We are also aware of the fact that the formulation of quality indicators presupposes goals and objectives as reference points for evaluation.

The formulation of goals and objectives in education and training policy has undergone a basic trend towards differentiation during the last few decades. Before that, the main emphasis was on the material input dimension (number of teachers, number of educational institutions, etc.) and simple process or output measures (class size, accessibility, retention). With the economic boom of the 1960s the focus in education had shifted togrowth accounting and manpower planning, and the increase of financial inputs became an important objective as well. Based on the human capital theory of the early 1970s the comparison of input and output was henceforth also used as an efficiency measure. However, the results at the macro level did not give sufficient information about what to do at the micro level, and the search for the "production function" proved more complicated than it was to be expected in the beginning (Hanushek 1987). The economic outcome measures of the contribution to economic growth, or the increase of workers' productivity, or the rate of return approach were considered too abstract to allow for any inferences from the complex education and training process. Consequently, the emphasis shifted to the analysis of the process, and qualitative issues were strongly reinforced by the effective schools movement of the 1980s and early 1990s (Papadopoulos 1994, Haddad et al. 1990). Most recently,the acquisition of competencies through education and training processes has been stressed as the main output measure, which should be emphasised as a core dimension of goals and objectives.

In sum, we can observe an ongoing process of expansion and differentiation with regard to the formulation of goals and objectives for education and training policy. The measures have been extended from input to process and result dimensions. The more concrete the

formulation of goals and objectives, the wider is the scope and the higher is the number of categories that can be used to measure progress. The complex nature of the delivery of services represents a specific issue in education and training policy: There is no clear and unambiguous way to achieve certain general goals; moreover, the influence of context might be strong and it is rather difficult to assess it rigorously; finally, there may be some dispute in a certain system as to its actual performance, mainly due to different dimensions of measurement (e.g., some outcome measures, as the situation on the youth labour market might be good, but the competence level provided by education could be less favourable).

A serious attempt to formulate more concrete goals and objectives has been made in the process of open coordination, with a specific initiative to develop a set of *"concrete future objectives of education systems"*.[38]

Table 6: Proposal of the concrete future objectives of education and training systems in the EU

Strategic objective 1: Improving the quality and effectiveness of education and training systems in the EU
Objective 1.1: Improving education and training for teachers and trainers
Objective 1.2: Developing skills for the knowledge society
Objective 1.3: Ensuring access to ICT for everyone
Objective 1.4: Increasing recruitment to scientific and technical studies
Objective 1.5: Making the best use of resources
Strategic objective 2: Facilitating the access of all to education and training systems
Objective 2.1: Open learning environment
Objective 2.2: Making learning more attractive
Objective 2.3: Supporting active citizenship, equal opportunities and social cohesion
Strategic objective 3: Opening up education and training systems to the wider world
Objective 3.1: Strengthening the links with working life and research and society at large
Objective 3.2: Developing the spirit of enterprise
Objective 3.3: Improving foreign language learning
Objective 3.4: Improving mobility
Objective 3.5: Strengthening the European co-operation

The formulation of objectives is not specifically targeted at the VET system, and the concept of quality is formulated somewhat more narrowly than in the approach of the Forum for

[38] Other recent examples for the formulation of goals and objectives at the transnational level are the results of the "EU - High Level Task Force on Skills and Mobility", and the Commission's Action Plan based on these results, or the recommendations by the 1999 UNESCO Congress on Technical and Vocational Education (Second International Congress 1999).

- The EU Action Plan for Skills and Mobility includes a set of objectives to improve (a) occupational mobility and skills development, (b) geographic mobility, and (c) information and transparency of job opportunities. A system of monitoring and following up the implementation of these objectives was recommended to be set up via a yearly benchmarking exercise (European Commission 2002). The formulated objectives have been translated into indicators based on available comparative data.
- The UNESCO Congress has formulated a broad agenda with regard to strategic goals for technical and vocational education to cope with the new challenges worldwide for (a) improving systems, (b) innovating the process, (c) universal access, (d) partnership for provision of services. However, the developed strategic goals have not been translated into any more concrete objectives or actions.

Quality. The strategic objective of "improving quality" covers the input dimension (Objectives 1.1, 1.3, partly 1.4, partly 1.5), and to some extent the aspects of process (Objective 1.5) and output (Objective 1.2); the outcome dimension is hardly covered by these objectives. The dimension of access has not been subsumed under the concept of quality but as a strategic objective of its own, and the dimension of matching supply and demand is covered implicitly at best (Objective 3.1).

Another European initiative that includes normative goals and objectives for policies in education, training and human resource development is the policy of the European Structural Funds, namely the European Social Fund (ESF), which is the main financial instrument at the EU level for human resource development (European Commission 1999). Objective 3 of the ESF gives a frame of reference for all measures to promote human resources, and also provides an instrument to assist the implementation of the employment guidelines of the European Employment Strategy. The ESF regulation[39] has defined five broad policy fields, and a number of eligible activities to develop human resources. One of these policy fields concerns the promotion of employability, skills and mobility through lifelong learning (see the table 7). A broad set of more or less clearly specified objectives is given to support the broad, overall policy goals. These objectives are meant to serve as a kind of overall menu, which has to be specified by the member states (or regions of member states) in their programme planning documents for the interventions supported by structural funds. The evaluation and assessment is carried out separately for individual countries, based on European guidelines indicating a rough structure and proposals for measurement and indicators. Comparability is not guaranteed with this procedure.

The objectives for education, training and human resources have been substantially strengthened and further developed in the new guidelines of the employment strategy.[40] The development of comprehensive and coherent strategies for lifelong learning has been included as one of the six horizontal guidelines. One specific guideline directly addresses the development of skills for the new labour market in the context of lifelong learning and the quality of education and training systems. In addition, almost every one of the specific guidelines in the four pillars also includes objectives for the improvement of skills and human resources (see the table 8). The three policy priorities of the Forum for Quality are clearly included in the employment guidelines: support of *employability* is the overall objective of the first pillar, improvement of *matching* of supply and demand is to a certain degree covered by the objective to improve job matching, and equal access is addressed by the guideline aimed at fighting discrimination and, in a more specific fashion, by some other guidelines as well (support of skills and training for specific target groups under the employability pillar; agreement of social partners to facilitate access; facilitating equal access of men and women

[39] Regulation (EC) No. 1784/1999.
[40] See: http://europa.eu.int/comm/employment_social/empl&esf/news/emplpack2001_en.htm

by gender mainstreaming). The normative character of the objectives is underlined by a horizontal guideline concerning their translation into national policies, which points to the necessity of a balanced strategy based on the whole programme. Some objectives have been translated into specified targets with a specific time frame for fulfilment, some others have only been recommended to the member states. The practice of the member states is assessed on a yearly basis and published in the Joint Employment Report. After the first five years, an impact evaluation was performed on a country-by-country basis, coordinated by the Commission, with an additional assessment of employment performance at the EU level. The main policy objectives of the Employment Guidelines are summarized in the evaluation report:[41]

- Developing comprehensive and coherent lifelong learning strategies (particularly by partnership, increasing participation, and raising investment in human resources)

- Improving the quality of education and training systems (relevant skills,[42] reducing illiteracy, cuting early school drop-outs, facilitating access of adults, encouraging mobility)

- Developing e-learning for all citizens (access of schools to internet and multimedia resources, necessary skills for teachers)

- Facilitating adaptability and innovation (agreements by social partners on lifelong learning, ICT literacy for workers)

The action plan for skills and mobility (European Commission 2002) has reinforced some of the objectives given by the structural policy and the employment strategy, and makes further specifications and extensions of objectives related to education, training and human resources. The defined objectives differ in character, some have taken up objectives directly from other initiatives (e.g., defining targets for cutting early school leaving), some are formulated in terms of specific actions (e.g., defining indicators about skill deficits, developing lifelong learning awards, defining standards for ICT and e-business skills), some call for more complex actions (e.g., developing a 'modular' system for the accumulation of qualifications, developing a new European system for the classification of occupations), and some propose rather broad strategies (e.g., introducing and consolidating effective competence development strategies for workers).

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[41] Impact Evaluation of the EES. Lifelong Learning. Background Paper, see: http://europa.eu.int/comm/employment_social/news/2002/may/lifelong_en.pdf

[42] "closer match between education and training provision and labour market needs" (ibid. 7), e.g., technology, ICT and language learning in curricula, more vocational aspects or workplace experience, expansion of apprenticeship or alternance schemes.

The EC communication about lifelong learning (European Commission 2001b) comprises several building blocks and priorities for the development of a coherent and comprehensive European strategy for lifelong learning, which are all based on the consultation process following the memorandum on lifelong learning. The proposals included in that communication provide a bridging between the lifelong learning guideline of the employment strategy and the development of concrete objectives for education and training policy and has also conceptually integrated some additional initiatives. The targeted European area of lifelong learning should be put into practice by the aforesaid contributions from the various processes, strategies and plans. Numerous objectives – different kinds and at different levels – are brought together in order to construct a systematic policy strategy for the realisation of lifelong learning in Europe.

Considering the stages of the implementation process, the objectives are largely situated at the levels of context (e.g., proposals concerning the method of policy making, such as the objectives under “striving for excellence”, or to ensure high quality outcomes, or several objectives for valuing learning), input (e.g., some of the objectives concerning resources, infrastructure and participation), and process (e.g., the objectives concerning the improvement of access, or matching of individuals to learning opportunities). The output and outcome dimensions are rarely touched by these proposals.

In the ESF and employment guidelines, quality is also just mentioned in a rather narrow sense, mainly as a specific aspect of the services of education and training systems, concerning issues of provision and infrastructure, participation and progression, and the results of education and training processes. The communication about lifelong learning has broadened and strengthened the concept of quality by including the issues of, e.g., learning culture, innovative pedagogy and striving for excellence.

No clear separation has been made between initial and continuing education and training, and the VET system in particular is rarely addressed in specific terms.

Table 7: Objectives for support of human resources in the Structural Funds Policy

Main principles of Structural Funds
- Sustainable development
- Equal opportunities

Main priorities of Structural Funds

COMPETITIVENESS OF REGIONAL ECONOMIES

Human resources for regional competitiveness
- Developing human capabilities for RTD and innovation:
- Programmes for the training and mobility of graduates, managers, scientists and engineers

Human resources for competitive enterprises
- Supporting human resources in SMEs for cooperation networks
- Supporting skills for exploitation of synergies between enterprises and the innovation system
- Supporting skills in areas with particular employment potential:
+ environment
+ tourism and culture
+ social economy

HUMAN RESOURCE STRATEGY
Employment and social cohesion supported through upgrading human resources

General elements
- Equal opportunities for men and women
- Employment potential of the information society
- Local development

URBAN AND RURAL DEVELOPMENT

Urban development
- Use of the measures of the human resource strategy (ESF, Objective 3)

Policy fields for programming ESF actions
+ Active labour market policies to promote employment
+ An inclusive society, open for all
+ Promoting employability, skills and mobility through lifelong learning
+ Developing adaptability and entrepreneurship
+ Positive action for women

Strategies for lifelong learning
+ Broadening access
- opportunities for lifelong learning
- opportunities in ICT
- development of certification for flexible access
+ Diversification and reinforcing training opportunities
+ Improving the quality of education and training systems
- equipment for ability to adapt and integrate
- provision of minimum basic skills for everyone
- young people with learning difficulties

Eligible activities for ESF interventions
Assistance to persons
- in education and vocational training, apprenticeship, pre-training, particularly provision and upgrading of basic skills, rehabilitation, promotion of employability, guidance, counselling and continuing training
- in research, science and technology, post-graduate training and training of managers and technicians

Assistance to structures and systems
- development and improvement of training, education and skills acquisition (including teachers, trainers and staff), improving access to training and qualifications
- development of links between work, education and training, and research
- development of systems for anticipating changes in employment and qualification needs.

Table 8: Objectives for support of human resources in the Employment Guidelines

HORIZONTAL GUIDELINE
Developing comprehensive and coherent strategies for lifelong learning
Specific guidelines in the four pillars
I. EMPLOYABILITY
Tackling youth unemployment and preventing long-term unemployment
+ training, retraining, or work practice as part of new start offers
+ retraining of staff of public employment service
A more employment-friendly approach: benefits, taxes, and training systems
+ measures for unemployed and inactive people to acquire or upgrade skills, including IT and communication skills
+ reducing skills gaps
Developing a policy for active aging
+ enhancing the capacity to remain in the labour force
+ measures to maintain capacity and skills of older workers
Developing skills for the new labour market in the context of lifelong learning (quality of education and training systems)
+ basic skills for young people relevant to the labour market and to participation in lifelong learning
+ reducing youth and adult illiteracy, reducing early school leavers
+ facilitating better access of adults, including those with atypical contracts, to lifelong learning
+ facilitating mobility and lifelong learning, paying attention to foreign language education and improved recognition of acquired skills
+ developing e-learning for all citizens (access of all schools to internet and multimedia, and teachers with ICT skills)
Active policies to develop job matching and to prevent and combat emerging bottlenecks in the new European labour markets
+ job-matching capacities of public employment services
+ policies to prevent skill shortages
+ promoting occupational and geographical mobility
+ improving databases on jobs and learning opportunities
Combating discrimination and promoting social inclusion by access to employment
+ identifying and combating all forms of discrimination in access to the labour market and to education and training
II. ENTREPRENEURSHIP AND JOB CREATION
Making it easier to start up and run businesses
+ entrepreneurial awareness in educational curricula
+ education for entrepreneurship and self-employment, training for entrepreneurs and would-be entrepreneurs
New opportunities for employment in the knowledge-based society and in services
+ upgrading workers' skills through modern environment technology
(Regional and local action for employment)
Tax reforms for employment and training
+ providing incentives and removing tax obstacles to investment in human resources
III. ADAPTABILITY
(Modernising work organisation)
Supporting adaptability in enterprises as a component of lifelong learning
+ agreements of social partners on lifelong learning to facilitate adaptability and innovation, particularly in ICT
IV. EQUAL OPPORTUNITIES FOR MEN AND WOMEN
Gender mainstreaming approach
+ facilitating women's access to education, continuing training and lifelong learning
Tackling gender gaps
+ balanced representation of men and women in all sectors and occupations, and at all levels
Reconciling work and family life
+ eliminating obstacles to return to paid workforce (outmoded skills, difficulty in access to training)

Table 9: Skills and mobility; objectives related to education, training and human resources development

Expanding occupational mobility and skills development
Right of free access for all citizens to the acquisition of key skills
Skills deficits, interest of young people for mathematics, science and technology (define indicators)
Improving educational attainment, at least upper secondary level; acquisition of a formal qualification, reducing early school leavers, integrating young people at disadvantage (define targets)
Links and partnerships of education and learning providers to business, labour market, information and guidance services and society (EC establish a network by 2004)
Competence development strategies, access to in company training, women's access to lifelong learning, particularly ICT, social partners' strategies for workforce development (participation, quality of work, individual competence development plan, investment in human capital), incentives for employers and individuals, local guidance networks
European lifelong learning awards to innovative companies and public sector organisations
ICT and e-business skills definitions and standards, validation, accreditation and recognition schemes (2005)
Monitoring demand for ICT and e-business skills and development of detailed skills profiles (implementing measures, exchange of experience, e-learning Working Group, ICT Skills Monitoring Group)
Exchange of experience on identification, assessment and recognition of non-formal learning (2002, Forum for Transparency)
Developing and implementing instruments supporting transparency and transferability of qualifications, developing a "modular" system for the accumulation of qualifications (2003)
Facilitating geographic mobility
Developing language skills, two foreign languages, starting to learn the first at grade 8 latest, strengthening in secondary schools and in VET institutions, being competent in the second at the end of compulsory education (strategy and timetable by 2005); language learning in competence development plans
European dimension in all higher and further education courses, studying in another member state, connections and relations among institutions, removing obstacles to mobility, including schools (Mobility Action Plan, EP Recommendation)
Developing recognition of qualification in non-regulated qualifications, voluntary quality standards in education and training (examining)
Improving information and transparency of job opportunities
New European system for classification of occupations (EURES, 2002, 2004)

Table 10: Communication lifelong learning, building blocks and priorities

	Priorities					
	EUROPEAN LEVEL			NATIONAL, REGIONAL, LOCAL LEVELS		
Building blocks	Valuing learning	Information, guidance, counselling	Investing time and money	Matching learners to opportunities	Basic skills	Innovative pedagogy
COHERENCE						
Partnership		⇔		⇔		⇔
Learning culture	⇔	⇔		⇔	⇔	
Striving for excellence	⇔		⇔			⇔
COMPREHENSIVENESS						
Insight into demand for learning				⇔	⇔	⇔
Adequate resourcing			⇔			
Facilitating access	⇔	⇔	⇔		⇔	

Table 11: Communication lifelong learning: building blocks and priorities

Communication lifelong learning, building blocks

Partnership
Effective coordination and coherence in policy between ministries;
Local level partnerships;
Involving social partners;
Involving the European level
Insight into demand for learning
Literacy, numeracy, information and communication technologies (ICT) and other basic skills' (foundation, tailored measures for alienated groups);
Addressing the impact on learning facilitators, role and adaptation;
Understanding the needs of employers, particular needs of SMEs, motivating employers;
Understanding (potential) learners' interests, imbalances in learning participation;
Implications of the knowledge-based society for learners (new basic skills, entrepreneurship), and labour markets (competence forecasting, upskilling).
Adequate resourcing
Overall rates of public and private investment to be raised, shared responsibility;
Availability, re-channelling across formal, non-formal and informal learning, including pre-school learning, transparency in the allocation of resources;
New approaches to investment, fiscal and other incentives for learning for all citizens, in and outside the labour market;
Integration of investment with strategies at the local level;
New tasks, roles, recruitment, retention in the teaching and training professions.
Facilitating access to learning opportunities
Removing social, geographical, psychological and other barriers (ICT, workplace learning, local learning centres);
Within the formal sector, adapting entry, progression and recognition requirements;
Complementing mainstream provision with tailored measures (basic skills, individual needs, specialist provision to meet any unmet demand);
Accompanying flexibility in the organisation of work by adequate investment by employers in their workforce (quality in work, social partners);
Information, guidance and counselling services as a key interface between learning needs and the learning on offer.
Creating a learning culture
Valuing and rewarding learning, especially non-formal and informal learning, recognising its intrinsic worth, encouraging the alienated to return to learning;
Positive perceptions of learning;
Appropriate use of targeted funding, promotional activity, reaching out to (potential) learners;
Raising awareness of the individual/social/economic benefits of learning, encouraging diversification of studies and non-traditional career/learning choices (voluntary/community level information, guidance, counselling providers);
Enterprises should become learning organisations, efforts being publicised and recognised;
Public service providers, voluntary and community groups, employers and trade unions should develop and/or promote learning opportunities tailored to their particular constituencies and, e.g. disabled people.
Striving for excellence
Setting ambitious targets (participation, resourcing, retention and learning outcomes, etc.), monitoring to pre-defined indicators (gender, socio-economic factors);
Developing quality assurance tools for formal and non-formal learning (standards, guidelines, inspection systems, quality awards, financial instruments, etc.);
Evaluation, assessment based on criteria for comprehensiveness and coherence and based on national/common targets and agreed indicators;
Regular assessment/revision of strategies to maintain relevance, effectiveness and complementarity with strategies at other levels.

Communication lifelong learning, priorities

Valuing learning
Valuing formal diplomas and certificates
Valuing non-formal and informal learning; exchange of experience
New instruments at the European level to support valuing all forms of learning
Information, guidance and counselling
Strengthening the European dimension of information, guidance and counselling
Investing time and money in learning
Raising levels of investment and making investment more transparent
Providing incentives and enabling investment
Ensuring high quality returns and outcomes of investment
Bringing together learners and learning opportunities
Encouraging and supporting learning communities, cities and regions, and setting up local learning centres
Encouraging and supporting learning at the workplace - also in SMEs
Basic skills
Identifying what the basic skills package should be
Making basic skills genuinely available to everyone and in particular to those less advantaged in schools, early school leavers and to adult learners
Innovative pedagogy
New teaching and learning methods and the new role of teachers, trainers and other learning facilitators
ICT enabling and supporting lifelong learning

Communication lifelong learning, priorities detailed

Valuing learning	
Valuing formal diplomas and certificates	Minimum quality standards development (Commission, member states social partners)
	Guide to, and glossary of, the Community instruments related to transparency of diplomas and certificates (Commission, 2002)
	A more uniform, transparent and flexible regime for professional recognition (regulated professions; Commission, 2001); access to information (member states)
	Supporting the 'Bologna process' (Commission, member states)
	Voluntary development and implementation of European diplomas and certificates, criteria (Commission, member states)
Valuing non-formal and informal learning; Exchange of experience	Systematic exchange of experience and good practice in the field of identification, assessment and recognition of non-formal learning (Commission, 2002, member states, social partners , NGOs, OECD, Cedefop, Eurydice, ETF).
	Developing methodologies and standards for valuing non-formal and informal learning (member states and all relevant players, providers of non-formal learning, social partners, formal education, NGOs representing excluded groups).
	Inventory of methodologies, systems and standards for the identification, assessment and recognition of non-formal and informal learning (Commission, 2003)
	Legal framework to implement more widely the identification, assessment and recognition of non-formal and informal learning, individual right to assessment (members states).
	Implementing measures for assessment and recognition of non-formal and informal learning by ET institutions (member states).
European instruments for valuing	'Portfolio' system to group together individual qualifications and competences and present them (Commission 2002).
	'Modular' system for the accumulation of qualifications from various institutions and countries (Commission, 2003, member states) ECTS, Europass.
Information, guidance and counselling	
European dimension of i-g-c	Internet portal on learning opportunities (Commission, 2002, member states)
	European Guidance Forum (Commission, 2002)
	Examining existing European networks and structures in the field of information, guidance and counselling (Commission, 2003)
Investing time and money in learning	
Raising levels of investment and making investment more transparent	Funding infrastructure and venture capital for lifelong learning (EIB, EBRD, EIF)
	National targets (shared contributions to various sectors of learning) to raise investment levels, to increase participation in further education and training by gender, age group, educational attainment and target groups (member states)
	Use of ESF and EQUAL for lifelong learning; local learning partnerships and centres, learning opportunities at work, access to basic skills, training of learning facilitators (member states)
	Indicators, tools evaluation of impact and implementation of ESF on lifelong learning (Commission 2003).
	Agreements to modernise the organisation of work, investment in lifelong learning, providing more time for learning (social partners) recognition, integration of non-formal and informal learning.
Providing incentives and enabling investment	Assessing impact of individual funding schemes on investment, participation and outcomes (Commission, 2002).
	Supporting research into the benefits, costs and returns of investing in learning under the 6th RFP (Commission).
	Overview of fiscal incentives for learning financed by individuals and companies, identification and adoption of good practice (Commission)
High quality outcomes	Guidelines and indicators on quality aspects of lifelong learning, exchanges of good practice and peer review (Commission, 2003, member states)
Bringing together learners and learning opportunities	
Supporting learning communities, cities and regions and local learning centres	Multi-purpose centres for lifelong learning (member states)
	Visibility of outcomes of non-formal and informal education resulting from activities of youth organisations.
	Use of ERDF and ESF to support lifelong learning as part of local and regional development programmes, and ICT skills especially in SMEs (member states)
	Implementation of lifelong learning at regional and local levels, links between local and regional learning centres across Europe, use of ICT, promoting most effective approaches to lifelong learning. (Committee of the Regions, European and national associations of local and regional levels),
	Networks between regions and cities with well-developed lifelong learning strategies (Commission)
Learning at the workplace - also in SMEs	Individual competence development plans, assessment of individual competences, accordance with enterprises' competence development plans (social partners)
	Framework, common goals, to promote lifelong learning at all levels and at enterprise level (EU, national social partners)
	Award for enterprises that invest in lifelong learning (Commission, 2003)
Basic skills	
Identifying basic skills	Basic skills provision outside formal education and training and acquisition by adults, motivation to learn, include social, personal and ICT skills in curricula (expert group)
Basic skills available to everyone; less advantaged, ESL, adults	Free access to basic skills for all citizens, regardless of age (member states)
	Basic digital literacy in compulsory education, digital literacy for citizens at risk of exclusion, recognised certificate of basic ICT skills for unemployed (member states)
	Promotion of universal access to learning opportunities to achieve information society literacy (social partners, 2003)
	Policy to promote the acquisition of basic skills and participation in mainstream lifelong learning for citizens at risk of exclusion (NGOs at the European level)
Innovative pedagogy	
New teaching and learning methods, new role of facilitators	Network for the training of teachers and trainers, including adult education, analysing and exchanging innovative experience in formal and non-formal contexts, transfer, framework of reference for competences and qualifications of teachers and trainers, ICT-based learning (Commission, member states, local and regional authorities, learning providers, teachers' representatives and NGOs, non-school youth education)
	Support of learning facilitators in non-formal and informal learning (social partners, NGOs, youth organisations, Commission, member states)
	Research about learning, development of efficient and effective pedagogic approaches for various groups of learners, including underrepresented groups/non-traditional learners (Commission, 6th RFP, Leonardo, Socrates, Youth eLearning, IST, EQUAL)
	European quality recommendations aiming at learning organisations outside formal education and training, European label (Commission, 2003, member states, social partners and international NGOs)
ICT in lifelong learning	Seals of quality for ICT-based learning and teaching material, in particular learning software, (Commission, member states)
	Developing ICT-based learning with a European dimension (Commission)

3.1.2. Formulating the results of policy

Formulating the results is the next function in the sketched policy model. The formulation of results concerns the formulation of the *expectations* given in a policy (or intervention), which will then serve as a reference for a comparison with the experience observed. The results of policy or practice must be distinguished from the results of the education and training process. While the results of the education and training process consist of output or outcomes, the results of policy can be found in each of the stages of the implementation process (context, input, process, output, outcome).

The main question is: Are the objectives formulated in an open way, as an activity which should be done, or are the results that should be achieved defined in an objectivated and principally measurable way? 'Improving the equality of opportunity' is a classical example for this question. Although this objective has been proclaimed many times, its meaning in objectivated terms has rarely been defined – the quality of the related policies cannot be assessed accurately in this case. Some distinctions are important for the formulation of results:

- Basically, the results of policies can be formulated at the level of policy delivery (input and process), or at the level of what should be achieved by the delivery (output, outcome).

- Another important aspect in this connection is the level of aggregation at which the results are attempted to be achieved, or the kinds of 'objects' that underlie the formulation of results (individuals, clients or customers, organisations and institutions, localities and regions, system level).

- A crucial issue is whether the formulation of results includes (1) operational definitions of what the achievement of results would mean, (2) some kind of mapping of the time scale for this achievement, (3) some kind of a relationship between policy delivery and products (i.e., ideas about the necessary resources for the achievement of results).

In the attempt to formulate the results accurately, one may also run the risk of falling into the above mentioned "measurability trap". It is rather easy to formulate very specific objectives in terms of objectivated results. The important objectives, however, are normally broad and complex, and difficult to be broken down into specific objectives. In an effort to obtain an accurate definition of the results one might therefore reduce the policy attempts to only easily achievable, specific objectives. Breaking down complex objectives (e.g., employability, or social inclusion) into meaningful specific results thus presents one of the main challenges here.

Objectives can be formulated in different ways, with important consequences for the formulation of results:

- As an activity to be done, e.g., 'to support the Bologna process', or 'to support learning facilitators in non-formal learning', or 'to assess individual funding schemes', or 'to use ESF funding for lifelong learning';

- As a product to be provided, e.g., 'an inventory of methodologies for the identification of informal learning', or 'a network between cities and regions with well-developed lifelong learning strategies', or 'multi-purpose centres for lifelong learning';

- Both, activities and products can be formulated in a more or less complex way, including a smaller or larger number of (potential) ingredients, i.e. steps or elements necessary to achieve the overall objective.

Clearly, the achievement of objectives can onlybe accurately assessed if activities are translated in products, and if complex products are broken down into observable elements.

With regard to the formulation of results and the respective time frames, the objectives in the above mentioned European policies are defined differently. In the ESF programming process the objectives to be achieved must be formulated by the applicants in their programming documents. In the employment strategy some objectives are formulated as operational targets at the European level, to be achieved in a certain time span; other objectives require the member states to set their own targets; and still others have been left more or less open.

Table 12: Proposal for European benchmarks as an example for the formulation of results

Investment in education and training
- Member states should continue to contribute to the achievement of the Lisbon objective of substantial annual increases in per capita investments in human resources, and, in this respect, set transparent benchmarks.
Early school leavers
- By 2010, member states should at least halve the rate of early school leavers as compared to the rate recorded in the year 2000, in order to achieve an EU average rate of 10% or less.
Graduates in Mathematics, Science and Technology
- By 2010, all member states will have at least halved the level of gender imbalance among graduates in the above mentioned fields whilst securing an overall significant increase of the total number of graduates, compared to the year 2000.
Upper secondary education attainment
- By 2010, member states should ensure that the EU average percentage of 25-64-year-olds with at least upper secondary education reaches 80% or more.
Key competencies
- By 2010, the percentage of low-achieving 15-year-olds in reading, mathematical and scientific literacy will be at least halved in each member state, compared to the year 2000.
Participation in lifelong learning
- By 2010, the EU average level of participation in lifelong learning should be at least 15% of the adult working age population (25-64 age group) and in no country should it be lower than 10%.

Source: European Commission (2002), European Benchmarks in Education and Training: Follow-up to the Lisbon European Council (Draft)

In the above table, the proposed European benchmarks in education and training are examples for the formulation of results.

3.1.3. Measurement and indicators

Measurement concerns the observation of experience, which has to be compared to the expectations in order to assess quality. An accurate formulation of results does not guarantee that the results can and will also be measured properly.

The new policy model touches on some deeply rooted inclinations and controversies in education and training, concerning various assumptions about the "measurability" of achievements and results. A cleavage between the qualitative and the quantitative is frequently assumed, and it has indeed remained very difficult to develop accurate quantitative measures of the core achievements of educational systems or institutions (cf. the international projects about achievement, TIMMSS, PISA, IALS-ALL, etc.). Much effort and a high amount of resources are needed to proceed. In most cases, easy and comparatively cheap measures are very indirect and insecure. And there is also the danger of limiting oneself to the measurable, instead of measuring what should be achieved. These problems are in turn likely to increase the mistrust in measurement. Moreover, the development of measurement is increasingly shifting to very big projects at the international level, even though this may to some extent reduce discretion about crucial issues of policy and practice at the national or sub-national levels (especially in smaller countries).

Clearly, the function of measurement transcends the mere technical questions of how something can be measured accurately based on the statistical criteria of objectivity, reliability and validity, and must also consider (1) the question of resources needed for measurement, and (2) questions of communication and acceptance among actors.[43]

Comparability has also grown more and more important, as VET is now seen as a key factor in competition and economic well-being (the EU in the triad, the member states within the EU). However, shifting measurement to the international level might hamper the embeddedness in the local, regional or national context, which concerns the function of social cohesiveness and well-being.

Including measures into comprehensive and multi-dimensional frameworks would to some extent do away with some of these pitfalls.[44]

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[43] To illustrate these problems, we might formulate the question about the consequences of the use of imperfect measurement as follows: Are bad measures better than no measures, or are no measures better than bad measures?

[44] The following systems and sources are used as a basis in this analysis: UOE data, OECD indicators, employment indicators (NAP, ESF), LFS and special modules, CVTS, key figures, quality indicators for schools and lifelong learning, task force for measuring lifelong learning, etc.

3.1.4. Gathering information

The new policy model challenges the main sources of information, as the national statistical systems have emerged for a long time "symbiotically" to the mechanisms of policy delivery. A lot of information was gathered about inputs, but much less or nothing about processes and results. The national statistical systems have developed big, complex and idiosyncratic structures, which cannot be changed easily. Moreover, change induces to some extent a break to history, as long-term time series might be skipped and substituted by new categories, etc.

The European statistics have partly shifted the measurement to new or different sources (i.e., from administrative statistics to surveys) and included complex processes of negotiation. The development of new processes to produce information is often time-consuming and frequently requires additional resources. There have also been various demands for coordination between different international activities (e.g., between the OECD indicators project and the EU sources), which may – due to a general reluctance to participate in international activities – be difficult to handle at the level of member states.

The systems used to collect information may differ quite a lot among individual countries (e.g., the production channels may be allocated in different bodies, the regulations may differ, the involvement of and the means available to research may differ, different sources may be used, the use of ICT may differ, etc.), and they could learn from each other about their strengths and weaknesses, about the amount of resources needed for certain activities, etc.

One crucial issue in this connection is the time scale for the production of information, both in terms of periodicity and in terms of availability. Another crucial issue – which is very closely related to the function of distribution and the use of information – concerns the ownership and the flow of information between the levels of aggregation (institutions, localities and regions, system level).

The described indicator systems do indeed have different time scales. Some of them are reported on a yearly basis, but due to problems of data gathering several measures refer to other years than the target year. Some systems cover a larger time scale (e.g., three or five years, such as PISA or CVTS), or are only reported on an irregular basis.

3.1.5. Distribution of information

This function concerns the potential and actual utilization of information. There may be very different systems and structures for the distribution of information among the various actors and in the public. The key questions in this context are: Who has what kind of access to what

kind of data at what cost? Are there any indicators or data available? Are raw or aggregate data available?

The systems of distribution are related to how the information can be used by the various actors in the policy process. The more widespread the distribution, the better is the quality of data that can be expected, as the actors are able to compare the information with their own experience and will provide feedback to the data collection systems.

3.1.6. Conclusions

This section was meant to give an overview of the main activities at the international and European level for each of these functions in the process of defining and monitoring goals and objectives in the policy process. The main topics and structures of the policy and information nexus were analysed from the viewpoint of *top-down activities*, which can be used as sources for the assessment and development of quality in VET. This analysis also provides basic categories for the selection and description of specific systems from a bottom-up perspective.

A broad array of formulated goals and objectives is available at the international and European level, many of them have undergone more or less developed and sophisticated processes of discussion and feedback among the member countries and various actors within them.

3.2. Three priority areas circumscribing quality of VET

In this section, the foundation is laid for the definition and selection of indicators used to assess quality in vocational education and training (VET). The three priority areas for policy and practice in VET (providing employability; matching the supply of and the demand for competencies and qualifications; providing inclusive access to VET), are taken as a basic distinction between the broad, overall objectives that need to be reached by VET policy and practice. A framework of quality indicators for VET, which is related to these general priorities, is proposed as well. In a first step, these priorities need to be broken down into a set of more concrete objectives, which may then serve as a basis for the formulation of expectations and assessment of experience.

The three priorities are complex concepts, they don't have an unambiguous and straightforward definition or meaning. Therefore they can be broken down into objectives in different ways. Due to this complexity, various sets of objectives can be formulated for each of these policy priorities. Consensus about the meaning of the overall priorities can be reached progressively during the process of policy and practice. This approach is well suited to a situation in which there is a great diversity of quality definitions among as well as within

individual countries. Relating indicators to a set of objectives will set up a conditional relationship, which also gives the freedom to select certain objectives for their purposes or not. At the same time, competitive relations among the different definitions of objectives and indicators are set up as well, which in turn may provoke a process of comparison, debate and clarification of the pros and cons for certain definitions among the actors involved.

The three broad policy priorities (employability, matching, access), which can be broken down into a respective set of objectives, can in a next step be related to indicators for measurement. The source for the selection of indicators should primarily consist of existing sets of indicators which are already in use. In addition, on can also check whether some of the objectives are not or only inadequately translated into existing indicators.

The main tasks in developmening a framework are thus: firstly, to break down the broad policy priorities into a set of more concrete objectives; and secondly, to relate the existing indicators to these objectives. The three policy priorities are more concrete than the existing frameworks of objectives (which have been documented above). Therefore the definition and selection of the respective objectives is not a trivial task. Moreover, that task gives room for discretion at several points, and sometimes calls for decisions about conflicting values. The definition and selection of indicators in relation to the defined objectives makes it necessary to break down indicators from the more general frameworks to the objectives in the three priorities.

In addition, the concept of quality can be defined either in a broader or in a more narrow sense, and we can observe a twofold tendency to broaden the concept:

- Firstly, a broadening from the level of education and training institutions to the *system level*, which also raises the question of how these different levels can be related to each other in a system of quality monitoring and development

- Secondly, a broadening from the level of delivery by the practicians in the education and training institutions to the *policy level*, where the conditions for delivery are set up or influenced.

The basic distinctions of the systems approach developed above (section 2.1.3; dimensions of context, input, process, output, outcome; and levels of observation: systems, institutional, practicians) must be taken into account. At the current stage, rhe focus is primarily on the systems level. This means that the indicators should allow for an assessment of how VET systems are generally able to contribute to the defined objectives.

Conventionally, the concept of quality predominantly focuses on how the education and training organisations deliver their services, mainly with regard to the results of their educating or training activities. Thus, in order to improve quality, the main emphasis had

been placed on the processes in education and training organisations. Broadening this concept to the system level makes sense if we consider that the three policy priorities – employability, matching, access – cannot be realized by these organisations alone, but must include broader actions and structures at the system level as well. This leads us to the second extension of the concept, which concerns policy. We can distinguish two dimensions that can be measured for quality: a) how the systems provide their services in order to improve quality according to the three priorities; b) how policy contributes to the improvement of quality. These dimensions are clearly interrelated, but they certainly have implications for the choice and application of indicators. A main implication is that the choice of indicators about policy includes tighter normative (in terms of strategic choices) and dynamic (in terms of the time scale of delivery) assumptions about which objectives should be reached. Another implication is that the responsibility for reaching a given objective can be attributed more properly to the actors in charge.

As it was already mentioned, we must take into account that each of the three policy priorities (employability, matching, access) is in itself a complex and ambiguous area for practice and policy. Therefore there are many possible ways to translate the broad priorities into more concrete objectives, which are guided by the ambitious goals set in the various European documents. A specific set of objectives ought to be defined for each priority, which should be "ideally" suitable to reach them on the basis of what we know about the respective areas. This set of objectives can then be translated into indicators to measure them, and related to the systems of indicators that are available 'top-down' at the international and European levels, as well as 'bottom-up' in the member states.

A first step towards the definition of objectives is the identification of the main issues and factors which are relevant in each of the three policy priorities.[45] We have seen in the above review of the objectives in the various European activities (see section 3.1.) that the VET system is not covered distinctively but only implicitly, and that the three priorities are included to some extent, but on different levels of prominence. A clear distinction of initial and continuing education and training is also missing in the formulated objectives.

A proposal, which – based on the analyses – sums up the main conceptual issues for the formulation of objectives in each of the three policy priorities, is given in the following table. The policy priorities, which are taken as a basic distinction for the definition of objectives and for the formulation of indicators, prove to be quite demanding but at the same time also conceptually productive. The overall formulation of the broad objectives regarding

[45] This section draws heavily on the input to and the debates in the indicator group of the European Forum on Quality of VET (Lassnigg L., Indicators for Quality in VET – Some Key Considerations Regarding Definition and Selection of Indicators,I Input Paper, April 2002; and Presentation to the Indicator Group: Indicators for Quality in VET – Objectives, April 2002) and on the input to and work of the Quality Forum (Lassnigg L. / Seyfried E., Indicators for a European Strategy for Quality in VET, May 2002).

employability, matching and access with the help of good quality ET systems and/or policies has been easily agreed on in several documents, albeit in a rather general fashion. Yet what it means to achieve these objectives, and how achievement should be measured is subject of much dispute. What are the proper framework conditions for acquiring the necessary competencies for employability? How can the responsiveness of a system be improved? How responsive to demand is a system ? How open, i.e. how accessible, is a system? How many resources should be allocated to the inclusion of vulnerable groups? These familiar questions quickly lead us to the facts, and to the issues of measurement and indicators.

Table 13: Main issues for the distinction and definition of the three policy priorities

	EMPLOYABILITY	MATCHING	ACCESS
Content considerations			
Objectives: What should be achieved basically?	- Acquisition of appropriate competencies and attitudes - Framework conditions to acquire them - Framework conditions to use them	- Responsiveness of supply to demand - Information, anticipation of needs - Provision of new ET offers	- Open accessibility - Inclusion of vulnerable groups - Outreach activities and targeted offers
Context factors:			
Meaning a) *External influencing factors*	Aggregate development - Economic and labour market development (e.g., business cycle) - Contextual conditions in society and related systems	Sectors, occupations, qualifications - Structural change - Demography	Groups, distributions - Other policies concerning conditions for access (e.g., income, social policy)
Meaning b) *Base line in time*	- Employment participation - ET participation - ET structures	- Economic and employment structure dynamics - Structural unemployment, amount of mismatch - Projections about shortages or bottlenecks	- Levels of inequality, selectivity, inclusiveness concerning participation and results
Technical considerations			
Levels of aggregation and disaggregation	Aggregate perspective - Youth and young people - Adults - Gender	Disaggregation by structural variables	Disaggregation by social groups

It was stated above that the ET organisations cannot provide for these achievements on their own, as they are embedded into systems and regulations. Now it should be added that VET systems also can't be deemed solely responsible for these achievements, as they too depend on contextual factors. Economic and occupational structures, incentives and, last but not least, resources are important conditions for the quality of VET systems. The meaning of the context dimension has been split up in two different categories. The first category attributes the main external influencing dimensions to the three policy priorities (meaning a). Here, the aggregate environment should be related to employability, and the other priorities also have to be considered in a more detailed fashion. The assessment of matching must take into account (disaggregate) structural features, and the assessment of access must take into account distributional features among groups in society. The second meaning of

context concerns the context with regard to history or development, as an actual basis for further development (meaning b). This second meaning of context is especially important if the focus is on the quality of policies.

The context is related to the definition of objectives in such a way that the more ambitiously the objectives are formulated (in terms of concreteness, etc.), the higher will the resulting demands be for the assessment of contextual factors. Concerning the selection of indicators about context, various decisions have to be made, namely to which extent this dimension should be covered, and how the more demanding areas, which are poorly covered by indicators so far, should be dealt with (e.g., the assessment of the given amount of mismatch, or the given selectivity of systems with regard to accessibility and permeability). The table explicitly allocates the context issues to the three priorities, although some more general context factors might be useful for all priorities.

An important point regarding the definition of objectives and the selection of indicators also concerns the relations between the three policy priorities. They are clearly interrelated, as access and matching in reality contribute to the achievement of employability, at least at a systems level. Thus a distinction between these priorities will shed light specifically on these important functions which contribute to the provision of employability. Certain objectives or indicators that may be used to analyse employability (which can therefore be – and conventionally are – allocated to this priority) can also be allocated to the other priorities in a more detailed or disaggregated fashion.

A differentiation between initial VET (IVET) and continuing VET (CVET) is necessary because of the distinct structures of these sub-systems in most education and training systems. At the level of objectives it is clear that both sub-systems should contribute to the overall promotion of lifelong learning. In order to support the perspective of lifelong learning, the definition of objectives and the selection of indicators should be as similar as possible for the sub-systems of IVET and CVET, and distinctions should only be made to clearly denote distinct and specific functions of each sub-system.

In the following sections key considerations about the objectives to achieve the three policy priorities are discussed, and lists of proposed key objectives in each of the priorities are presented.

3.2.1. Priority I: Employability

The concept of employability has clearly gained prominence on the political agenda during the last decade, especially since the Luxembourg summit in 1997, after which it became a

main concept in the European employment strategy.[46] The emergence of the concept, and its implications for policy and practice, were thoroughly analysed by Bernard Gazier (1999) and his colleagues. The main asset of this concept, i.e. its dynamic and interactive nature, has replaced security of employment by "employability security. Although not easily and not often defined, employability in this context means dynamic and updated competencies and labour-market-oriented behaviour for every person participating in the workforce. … The insistence on the dynamic and interactive dimensions is now patent and constitutes the main attributes of the present and operational concept of employability. … Even when implemented through concrete labour market policy interventions, employability remains in part abstract. The ability to find and keep a job, however defined, is not the disposal of a job." (ibid. introduction)

This is a relatively new and a complex concept. As the development of indicators normally is a rather lenghty process, the well-established systems of indicators do not measure employability. The development of widely used indicators also includes a lot of learning processes by a dynamic of definition, measurement, and interpretation. A complex concept cannot be measured directly, and there is room for discretion when it is defined in terms of empirical traits. The concept also has no unanimous definition. This is reinforced by the fact that there is a certain shift of paradigm when the relation of education and training to employment is defined. Employability refers to the individual and his/her responsibility to contribute to the conditions necessary to participate in employment, but it also refers to the overall system of employment relations, including the practices of enterprises, which are to some extent providing incentives and constituting expectations. "Employability means the capacity for people to be employed: it relates not only to the adequacy of their skills but also incentives and opportunities offered to individuals to seek employment." (European Commission 1997) The study has identified three main factors influencing employability:

- "the recruitment and search strategies of the labour market actors;"
- "the situation and activities of intermediaries, such as public and private employment agencies;"
- "and general demand and production conditions". (Gazier 1997, introduction)

A more recent working definition by CEDEFOP includes two components in particular: readiness for mobility and for the development of occupational competences.[47] However,the proposal for the employment guidelines for 1998 also clearly pointed out: "But training alone is not enough. There is a clear need to make benefit and taxation systems more employment-friendly by promoting active measures that favour employment or encourage

[46] See: http://europa.eu.int/comm/employment_social/elm/summit/en/papers/guide.htm

[47] CEDEFOP, Glossary on Identification, Assessment and Validation of Qualification and Competencies; and Transparency and Transferability of Qualifications.

people of working age to acquire new skills and update existing skills." (European Commission 1997)

The tension between an individualistic definition of employability, which focuses on the initiative of individuals, and an interactive concept makes them stand out among the more recent interpretations. The interactive concept assumes that "employability is an attribute not merely of individuals but also of the workforce as a whole; … improving employability is not just about increasing skills and human capital but also about overcoming a whole array of barriers that prevent people from accessing jobs, remaining in stable jobs or increasing earnings" (Gazier 1999, 10.1.2.4.3).

As the concept is strongly contextual, VET is not the only contributor to employability. Therefore overall measures of employability cannot be directly attributed to the quality of VET. The definition of objectives can to some extent bridge this attribution problem, as the objectives express what VET ought to do in order to improve employability.

Employability cannot be measured directly. Therefore indirect measures must be elaborated as to which kinds of aspects of the concept they refer. The employment guidelines and the indicators of the employment strategy do not attempt to measure employability. Instead, the efforts of labour market policy to prevent long-term unemployment, the rate of inflow into long-term unemployment and the activation rate are measured within this particular context. Yet these measures are clearly not sufficient to assess the quality of VET. The main measures applied so far focus on employment, unemployment and inactivity. However, employment does not really measure employability. People who are employed are obviously to some extent employable, but due to the contextual and interactive nature of the concept the reverse must not necessarily be true.

The interactive concept of employability presupposes changes not only by individuals, but also by enterprises and other actors involved in the employment and labour market system as well as in the wider welfare system (Blancke/Roth/Schmid 2000). Individuals, in order to secure and improve their employability, need incentives and support, which mainly ought to be provided by CVET, particularly through the introduction of competence development strategies for workers, and the involvement of in-company training. These objectives are strongly addressed in the Action Plan for Skills and Mobility[48] and in the Communication about the European area of lifelong learning.[49]

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[48] See esp. section 3.1.2 'Introduce and consolidate effective competence development strategies for workers'.

[49] See the priority 'Bringing together learners and learning opportunities', which proposes the support of learning communities, regions and cities, and the support of learning at the workplace including SMEs.

Table 14: Employability – formulation of objectives

Levels of **VET system**, institutions, practicians
POLICY, STEERING, MANAGEMENT

EMPLOYABILITY

Formulation of GOALS AND OBJECTIVES

IVET | Common | CVET

Input

Competencies and attitudes provided and achieved
(basic, ICT, social, personal, technical, MST)

PROVISION
- availability of adequate resources
- availability of study places, learning opportunities, recognition of qualifications
- companies providing opportunities for competence development
- qualification of teachers, trainers, facilitators
- accurate curricula and learning material

Process

- participation in learning opportunities
- participation from old (declining) jobs/occupations/trades/sectors
- combination of ET and work place experience

Output

ACHIEVEMENT
competences demonstrated

Completion of education and training pathways and acquisition of qualifications
(avoidance of drop out)
- completion of VET programmes or courses
- prevention of (early) drop out
- acquisition of recognised qualifications

Outcome

Transition to employment and employment participation
(avoidance of unemployment and inactivity)
- transition to employment (success, conditions)
- activity and employment participation
- inactivity, unemployment, risk of unemployment
- youth employment, unemployment, inactivity

Quality of employment, access to new and flourishing sectors
(stability, income, desired working time and contract conditions)
- support of productivity and growth, social and individual returns to VET
- quality of (new) employment
- inflow, mobility to new (growing) jobs/occupations/trades/sectors

The main dimensions, which are seen conceptually as providing employability at the level of individuals, are competencies and attitudes. Paradoxically, these are only poorly measured so far and, moreover, rarely proven in their actual impact. The attempts to measure the achieved competences provide at best marginal information about the VET systems. The PISA assessment gives information about young people at the entry to VET. The Adult Literacy Study[50] is an important source as well, yet only a small number of countries has been participating in these activities so far. The correlation of the direct measures with

[50] See: http://www.nald.ca/nls/ials/introduc.htm; http://www.ets.org/all/project.html

employment performance, as compared to the effects of educational attainment or work experience, varies in the countries involved.[51] Another important attempt, which is also still in a rather early stage of development, is the project dealing with the definition and selection of competencies.[52]

Now, as we turn to the potential contribution of VET to the improvement of employability, we can identify a set of objectives by whose achievement that contribution can be expected. This set of objectives is summarized in the above table.

3.2.2. Priority II: Matching of supply and demand for competencies and qualifications on the labour market

VET systems have come under pressure for insufficiently matching VET supply to demand. However, assessing the quality of that matching performance has rarely been an explicit policy priority so far. It has, in fact, turned out to be rather difficult to explicitly measure the matching quality. The employment guidelines have introduced an objective of policies to develop job matching and to prevent and combat emerging bottlenecks in the labour markets. However, the main activities to achieve this objective are aimed at the labour market and at employment systems. The attempts to develop policies to prevent skill shortages, on the other hand, address the VET system more directly. This task is strongly reinforced in the Skills and Mobility Action Plan, which proposes to develop indicators that will measure skills deficits, and in one of the building blocks of the Communication about the European area for lifelong learning, which has set the task of gaining insight into the demand for learning from the perspectives of the different actors.

The demand for skills is stressed not only at the interface of VET and the employment and labour market system in general, but also at the interface to the innovation system, which plays a key role in the development of the knowledge-based economy and society. The specific relationships between overall education and training on the one hand, and the innovation system on the other hand are not so clear yet. The demand for skills strongly focuses on tertiary education and on competencies in Mathematics, Science and Technology (MST) for the purpose of the creative activities in innovation. Yet it is the broader skills demand for the purposes of diffusion of innovation, or an expansion of the capacity of consumer demand for innovative products and services, which are really at stake. Considering the trend of upgrading VET from the upper secondary level to the tertiary level in some countries, these questions are extremely important.[53] Some authors strongly support

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[51] The net effects of literacy on income are higher than or similar to the net effects of educational attainment in Ireland, US and UK, in the other countries the effects from attainment are higher. See the highlights from the second report of the IALS study: Literacy Skills for the Knowledge Society (http://www.nald.ca/nls/ials/introduc.htm).

[52] See: http://www.statistik.admin.ch/stat_ch/ber15/deseco/

[53] See as an example the recent review of education policy in Finland (OECD 2002).

the upgrading process, others point to tendencies of "overeducation" in this connection. In an analysis about the relationship of lifelong learning to innovation one author has pointed out that "it would be of interest to have an indicator for the match between current skills and current job requirements" (EIS 2002, 6). The future match between the supply of skills from education and training will also be strongly influenced by demographic trends, e.g., by an ageing of the population and by a relative or absolute reduction of young people. The supply of skills from initial VET will clearly be influenced by that trend.

An analysis of the relation between the supply of and demand for human resources basically concerns the performance and efficiency of the labour market. In such a complex system, there are various, widely differing approaches to the assessment of the performance of the labour market, ranging from macro-economic concepts about the relation between GDP or output growth and the labour market, to the micro-level concepts of matching job-seekers to vacancies. In any case, VET is only one of the factors that influence this broader system. If the performance of the overall system is not known, it is clearly not possible to identify the impact of a specific factor. This is the main difficulty in the assessment of matching. The key problem, which is heavily disputed, concerns the analysis of the demand side: If the demand for labour and qualifications is taken as given, it is relatively easy (at least in the short run) to assess the labour market performance. However, according to one of the main ideas in the concepts of innovation and the knowledge-based economy, the demand for competencies rather evolves through complex interactive relationships with the various factors pertaining to innovative behaviour.

Concerning VET we can clearly say that the overall impact of CVET on the labour market performance will be – at least potentially – greater than that of IVET, as IVET produces by definition a limited inflow into the overall flows on the labour market (one age cohort per year). Depending on the amount of participation, CVET may potentially have a much broader impact on the flows and transactions on the labour market. This comparison refers to quantitative relationships. From a qualitative perspective, however, the relationship is less clear. IVET is meant to renew the human resources stock gradually and year by year. But in case of an ongoing structural mismatch this will eventually accumulate and lead to substantial problems in the mid- and longer term. The increasing dynamic of changing demand, in combination with an ageing population, thus exerts a double squeeze on the renewal of skills and competencies.

A main concern in analysing the overall employment and labour market performance is the separation of a persisting structural component from the cyclical and frictional components. The structural component is assumed to be caused by the institutional set-up of the employment and labour market system, comprising the following elements (see European Commission DG EMPL 2002, 50):

- the design of tax-benefit systems,
- *skills mismatches*,
- geographic and occupational mobility in the labour market,
- active labour market policy to prevent unemployment from becoming persistent,
- the degree of competition among producers,
- long-term real interest rates.

The main concepts to measure the structural component are: the NAIRU, a stock concept based on macro-economic econometric modelling, and the Beveridge curve, a flow concept which measures the matching between supply and demand on the labour market by comparing the relationship between unemployment and job vacancies over time. An inward or outward shift of the Beveridge curve indicates improvement or deterioration of the overall matching efficiency on the labour market. These estimates at the aggregate level, which have been provided for all EU member statesby recent studies,[54] mainly provide information about the context of VET. In principle, the weight of skills mismatches can be estimated by models based on that concept, or by using additional measures more loosely, and the matching efficiency can also be analysed for certain sub-groups or sectors (Tronti 1997, 31-50). At the European level the variance between unemployment of people with different educational attainment levels as compared to overall unemployment has been used as an indicator for educational mismatch (ECB 2002, 16). Several measures, which are based on a comparison of the distribution of educational attainment among different aggregates (population, young and adult population, the employed, unemployed and inactive population, etc.) and its change over time, are used to assess skills mismatch (European Commission - Enterprise 2002, Ch. II). The educational attainment structure of the employed population and the change thereof reflect the demand for skills, whereas the attainment structure of different aggregates of the population reflects supply. The degree of similarity between the distribution of supply and of demand is used as a measure for the match or mismatch.

Skill gaps, defined as “poor availability of potential skilled employees within the existing workforce” (ibid. 39), are measured in a similar way, i.e. on the basis of the categories of educational attainment levels. The European Employment Observatory has distinguished between labour shortage and skills gaps (EEO 2001, iii):

- labour shortage: “an overall shortage of labour at national level across sectoral and occupational areas”

[54] See: Employment in Europe, 71-72; ECB 2002, 15,31-32; Estimates of the Beveridge curve normally rely on the statistical categories regarding supply and demand on the labour market (the demand data being notoriously problematic), with possible break-downs into sectoral, occupational or educational categories.

- skill shortage: “seen to exist when employers are unable to recruit staff with the skills they are looking for at the going rate of pay”.

The lack of agreed definitions and data and the diversity of methodologies have been identified as the main problems in observing skills gaps. In this connection, the EEO has come to the conclusion that “the emergence of labour shortages and skills gaps is a highly complex and multi-faceted phenomenon. The importance of addressing this phenomenon is highlighted by evidence available in the Member States which shows that skill shortages can lead to wage cost inflation, difficulties in maintaining competitiveness and even an indication of the emergence of the 'discouraged recruiter' which could impede job creation in the short to medium term. It is a phenomenon which has only recently begun to attain greater prominence in the academic community”[55] (ibid. vi). Emphasis is also laid on the question of how to predict future skill shortages, which is even more problematic considering the limitations faced in pointing out even the current situation. “The importance of the mapping and forecasting of skill needs is not only important in avoiding skills shortages with potential future impact on competitiveness, but also in avoiding low returns on investment and to avoid expectation failure.” (ibid.)

Despite some overall comparisons indicating that unemployment of people with qualifications obtained by VET is systematically lower than unemployment of people without VET qualifications, these overall measures of the matching efficiency only provide very limited information about the performance of VET systems or institutions. A main shortcoming of these measures is that only the broad attainment levels can be used on a comparative basis so far. For the future, the new ISCED classification of programmes should allow for more detailed analyses.

In sum, the existing research on how the supply and demand of skills and competencies is matched on the labour market gives at best a general picture about past trends or the current situation. In order to draw conclusions about objectives for VET policies, that information mainly concerns the contextual issues for the development of VET. An important observation, which is common to all these studies, is that the empirical differences between countries are rather large and diverse. This observation leads us to another body of research, which has analysed the different structures of the education and employment nexus.[56] The main point here is that the relationship between skills acquisition and skills utilization is institutionalised in different models of education and training regimes, which organise the relationship between education and working life differently, with different

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[55] Several examples for academic attempts to assess these issues may be found in Manacorda/Petrongolo 1999, Nickell/Redding/Swaffield 2002, Lucifora/Origo 2002.

[56] See the considerations and literature about context in section 2.1.3 above; for a review of education-training regimes see Lassnigg 2001; see also Descy/Tessaring 2001, esp. Ch V. 2, Hannan et al. 1996, OECD 1998, OECD 2000, Ahola 1999.

structures of transition from school to working life, different degrees of differentiation and standardisation of educational and occupational structures, different forms and incidence of continuing training, etc.

Table 15: Matching – formulation of objectives

Levels of **VET system**, institutions, practicians

POLICY, STEERING, MANAGEMENT

MATCHING

Formulation of GOALS AND OBJECTIVES

IVET Common CVET

Availability of information about demand, supply, needs, and behaviour
(regions, sectors, occupations, qualifications, job categories)

Input

ACQUISITION, PRODUCTION OF INFORMATION
- regular activities of collecting information from:
  employers, enterprises
  population, employees
  intermediaries (employment service, counselling services
  students, learners, young people
- collecting information about flows and transactions in employment and labour market
- assessment of mismatch between supply and demand
- existence of systems of anticipation and foresight about demand, supply and transactions

Process

AVAILABILITY, DISTRIBUTION OF INFORMATION
- existence of comprehensive reporting system
- existence of ICT and web based information
- existence of information, guidance and counselling services

Output

Responsiveness of VET supply to demand
(providers, practicians, policy makers)
- information about demand recognized by VET suppliers (regular information flows)
- existence of feedback mechanisms from anticipation and foresight to VET suppliers
- reactions of VET suppliers to information about demand, supply, needs, and behaviour of actors

Outcome

Adaptation of VET supply
(reactive, short-term, quantitative)
- quantitative adaptation of VET supply to demand
- provision of new VET offers in reaction to demand

Innovation of VET supply
(proactive, longer-term, strategic)
- development of supply related to new and anticipated demand

Generally, there seem to be at least two prevalent broad approaches aiming to improve the matching between VET supply and demand for qualifications, which are also more or less inherent in a certain VET system: Firstly, the provision of more broad supply profiles, to absorb the dynamic of change by increasing the flexibility of the actors, individuals and enterprises involved (the flexibility approach); and secondly, the provision of more specific supply profiles, which are more narrowly tied to demand (the specifity approach). The former solution avoids the problems of visible mismatch, but the match is difficult to judge as well. In

the latter solution, the proper adaptation to changing demands has turned out to be somewhat problematic.

An assessment of the quality of matching presupposes a clear definition of demand, and its relation to supply in terms of comparable measurement units. In reality, assessment is performed by means of more or less implicit processes, and rarely or only partly by explicit procedures. Different dimensions can be used to assess matching, and in most systems more than one of these dimensions will be relevant: occupations, trades or sectors, education and training levels, qualifications or competencies.

The main questions in this context will basically depend on the broad approaches applied in a particular system, although in reality most systems will comprise some kind of mixture with regard to flexibility and specificity. A certain degree of competition between these approaches will also prevail within a system, e.g., between different sectors of VET. The main dimensions of matching practice are as follows:

- A first, important dimension in the field of matching concerns the *production and dissemination of information and knowledge* in a system. How are mismatches detected (informally, formally)? What time perspective and approach is involved (short-term, mid- or long-term; reactive, proactive)? What are the main dimensions in which mismatches are perceived and which are relevant to the improvement of matching? How is information about mismatches communicated among the actors?

- A second dimension concerns the *actions or types of activities taken to react to perceived mismatches*. Which strategies are taken or expected to be taken by VET systems or its sub-sectors in order to improve matching (flexibility and broadening, specificity and updating)? Which actors (individuals, enterprises, education sector, policy and public sector, research) have which implicit or explicit responsibilities in the prevailing matching practices? How should what kind of information be disseminated among the actors?

- A third dimension concerns the *relationships between initial VET and continuing VET* with respect to matching. A main difference between these sectors is that IVET is considered to be rather supply-oriented, whereas CVET is deemed to be rather demand-oriented. One way to conceive this relationship in terms of matching has been to allocate to IVET the more general, long-term and foundational tasks, and to allocate to CVET the more specific and dynamic adaptational tasks. Consequently, matching in IVET would be more strongly driven by the foresight and anticipation of longer-term trends, whereas in CVET it would be more strongly guided by the short-term dynamic of demand and supply on the labour market. Thus, in order to improve matching, a basic policy task would have been the coordination between IVET and CVET. However, the conception of these sectors in the strategy of lifelong learning has lately become more blurred. Both sectors are

increasingly expected to respond to demand, and both sectors are expected to take into account longer-term trends and more general and specific aspects.

A crucial element in the matching practice is the use of methods to anticipate and foresee the future demand for skills and competencies, and the relationship of these methods to the development of education and training profiles in VET systems. However, the prevalent practices and developments are quite different throughout the EU.

3.2.3. Priority III: Access, especially for vulnerable groups

The third policy priority covers two different facets which are not clearly denoted in the definition: the overall accessibility of VET systems and institutions, and the accessibility of vulnerable groups. The provision of access as a policy priority is to some extent a conflict-loaded issue, mainly due to the fact that a main dimension inherent in education is selection. Therefore accessibility has to be somewhat related to selectivity, which is based on different values and interests. The extent to which this is done differs widely in education systems. Moreover, in terms of functional consequences these different relations are not sufficiently clear. It is frequently assumed that a certain degree of selectivity would improve the quality of results, but that assumption was contradicted by the empirical results of the recent PISA study.

There seems to be a pragmatic consensus about certain functional assets of the accessibility-selectivity relationship:

- VET systems should not select someone on the grounds of anything other than the prevailing definitions of ability (which may differ widely).

- The selectivity of VET systems should not be organised in a way that produces various forms of waste of energy or resources (e.g., traits like frequent repetition of grades, drop-out, dead-ends or broken pathways, unproductive waiting procedures should be avoided).

- VET systems are expected to secure a first vocational qualification for the entire cohorts of young people, and to provide an opportunity for adults to update obsolete qualifications

- In order to combat social exclusion, VET systems should guarantee at least a certain level of basic qualifications or a basic level of competencies for the whole population, i.e. it should avoid early school-leavers, provide second chances to young people who dropped out early anyway, and offer the respective opportunities to adults as well.

- Finally, as the requirements for qualifications and competencies are generally estimated to be on the rise because of the development towards a knowledge-based economy and

economic policy objectives, the objective of broadening access to higher qualifications is generally seen as an aim of education and training policy.

Based on these considerations we can define a set of objectives for an overall improvement of access, and another set of objectives that will make it easier for vulnerable groups to gain access to learning opportunities.

Table 16: Access – Formulation of Objectives

Levels of **VET system**, institutions, practicians
POLICY, STEERING, MANAGEMENT

ACCESS

Formulation of GOALS AND OBJECTIVES

IVET | Common | CVET

Effective provision of the basic competences for everyone
(needs of and offers for low qualified, disadvantaged, or socially excluded groups)

IDENTIFICATION OF THE NEEDS OF VULNERABLE GROUPS
- observation of the profile and incidence of vulnerable groups (qualitative, quantitative)
- assessment of the needs of the various vulnerable groups

DEVELOPMENT AND PROVISION OF OFFERS FOR VULNERABLE GROUPS

Input
- right for access to the (targeted) learning opportunities
- outreach, guidance, counselling and activation instruments to support participation

Process
- development of taylor-made learning opportunities answering the needs
- provision of learning opportunities (targeted offers)

Generally broadening access to VET
(provision of learning opportunities to everyone who can profit)
- accessibility, observation of unequal access and social selectivity in VET
- incentives and support for participation, combat inequalities and hindrances
- smooth progression pathways, avoiding unproductive waiting periods and repetition
- flexibility, modularisation, credits, accreditation, certification
- mechanisms for identification, accreditation and recognition of prior learning
- balanced system of formal, non-formal and informal opportunities
- competence development systems for the employed

Output

Effective participation of vulnerable groups
(guarantees and support mechanisms)
- effective material support of participation

Outcome
- support of completion of programmes or courses and re-entry in employment

Effective pathways and permeability in VET
(avoidance of waste of resources)
- effective information about supply and conditions for access
- improved returns and employment outcomes by improved accessibility

4. Indicators in use – a bottom-up approach

The main task of the bottom-up approach has been to screen all systems of indicators that are available and in use in the member states.[57] The members of the European Forum for Quality in VET had been asked to provide material describing the sets of indicators that are in use in their countries. Information and feedback concerning the use of indicators has been made available by most of the member states and by various other countries cooperating in the Forum. Some contributions consisted of detailed descriptions of indicator sets as well as of their organisational implementation, and in some cases long-standing results with practical experiences. Representatives from other countries provided papers with plans to establish quality indicators in the near future. However, the provided material indicates that there are only a few countries where a coherent set of indicators is already used to improve the quality of VET systems. At a systems level, this mainly seems to be the case in Denmark, in the Netherlands, and in the Flemish community in Belgium. In Italy, a set of indicators for quality in VET is applied to ESF-funded activities. In Spain, a set of indicators has been developed at a central level, to be subsequently implemented in cooperation with the regions. The most widespread mechanisms of quality assurance are inspectorate systems, which are more or less combined with self-assessment systems. Indicators are mostly used at a more or less abstract and descriptive systemic level, and are more or less unrelated to the qualitative mechanisms at the institutional level.

4.1 Some selected stylised examples of the use of indicators for quality

In order to explore the use of indicators in different systems or sectors of education and training policy, several practical examples will be summarized in the following in a very stylised way.These examples should give an impression of the current state and the different approaches taken in the member states. The examples are by no means comprehensive, but they do provide some insight into the different approaches to the quality issue.

- The education authority of the Flemish community in Belgium has developed a very sophisticated model, whichserves a basis for evaluating and planning the education system at the macro level. This initiative was strongly influenced by the OECD efforts to develop education indicators (since the 1990s), but also includes some other perspectives, particularly a stronger emphasis on the aspects of process and on the satisfaction of pupils and students, as well as a slightly weaker emphasis on the economic-technical approach (Ministry of the Flemish Community 2001, 7). A distinction

[57] This section is strongly based on section 3.5 of the final report on indicators provided by Erwin Seyfried from the Forum for Quality in VET.
See: http://www2.trainingvillage.gr/etv/quality/techn_group/techn_group.asp > Indicators for a European Strategy to Support Quality in VET.

is made between two indicator functions in connection with policy-making: one means that indicators are developed with a certain distance to policy, so as to provide a somewhat independent basis for an improvement of the system (this meaning refers to the above-mentioned communicative purpose of indicators); the other meaning, which refers to the normative purpose of indicators, calls for a more direct inclusion into the policy programme (see above, section 2). The Flemish approach is largely consistent with the first meaning. A "Policy Memorandum" by the Flemish minister for education and training (Vanderpoorten 2001)[58] has provided the Government of Flanders with strategic and operational objectives for education and training for the period of 2000-2004. The system of indicators was related to these objectives by defining their explicit linkages to the policy objectives of the memorandum. The linkages were formulated ex-post. The strategic and operational objectives of the policy memorandum were covered to a different extent by the indicators, and some gaps concerning operational objectives, which are difficult to translate into indicators, still remained (e.g., 'simplification of the rules', or 'optimising child care'). The content of the Flemish system of indicators mainly refers to policy at the macro level, at which the respective indicators can constantly be linked with the policy objectives. Here it is possible to monitor evolutions and/or to examine whether and to what extent the policy objectives have been achieved. Since 1998, the Education Department has been useing the so-called CIPO model as a framework for indicators. CIPO stands for "context-input-process-output" and consists of a total of 28 indicators (4 context indicators, 14 input indicators, 4 process indicators, and 6 output indicators). This particular structure of the Flemish model strongly corresponds to the model of indicators proposed in this study. With regard to the use of indicators at different levels of the education and training system, it is also clearly stated that "the Education department does not wish to impose on schools the education indicators" (Ministry of the Flemish community 2001, 7), which means that in their relation to the procedures of quality development at the school level (school audits) the indicators do serve a communicative (as a supply of information) rather than a normative purpose.

- The development of mechanisms for quality assurance has been a long-standing issue in the Danish education and training system, and they have been further developed within the context of some more recent reforms.[59] In VET, the vocational colleges are required by law to have a quality assurance system. Each school must have a system for ongoing quality development and for evaluating the results of the courses undertaken at school. The quality assurance system includes a specific procedure that allows for ongoing self-

[58] See for publications: http://www.ond.vlaanderen.be/publicaties/database/lijst.asp?taal=1

[59] See the materials presented at: http://eng.uvm.dk//publications/; the following documents, in particular, give insight into some of the main developments: Principles and Issues in Education - 1997, Ch. 3 Youth Education (http://eng.uvm.dk/publications/1prin/3.htm); New structures of the Danish Vocational Education and Training System - 2000 (http://pub.uvm.dk/2000/newstructure/); The Adult Education and Continuing Training Reform - Factsheet - 2000 (http://eng.uvm.dk//publications/factsheets/veureform.htm).

assessment and quality development, which is guided by questions about strategically selected fields of education and training activities. Each school must also have a procedure which shows that the teaching provided meets the objectives set out in the plans for individual courses. Furthermore, an increasing number of vocational schools in Denmark have joined forces over the last four years to improve the quality of their services and establish benchmarks in this area. So far, these cooperative efforts mainly consist of benchmarking on the basis of satisfaction surveys conducted among the students and staff. The financial managers of the schools are currently seeking to develop comparative financial indices for all schools. These mechanisms have been largely focused on the input side, albeit more recent documents have also laid considerable emphasis on the further development of output indicators (The Danish Government 2002, 80). At the central level, various attempts have been made to develop a system of indicators for the purpose of reporting and assessing the achievement of the goals and objectives of education and training policy.[60] A total of seven general targets were set, and five framework conditions, which will be necessary to reach these targets, were defined as well. These dimensions have been defined in terms of indicators and translated into results given by the setting of criteria on the indicators. It has been also considered for the future to create operative linkages between this monitoring system and the mechanisms of quality assurance and quality development at the level of institutions, e.g., in order to assure the inputs necessary to achieve the targets (The Danish Government 2002, 19-20). The currently applied system of indicators includes 43 indicators (with a number of sub-indicators), which are allocated to four broad categories: the education system (including basic characteristics of provision and financing), resources (16 indicators), pupil/student flows (15 indicators), and results (10 indicators). An important feature of the Danish system and policy is that the distinction between initial education and adult/continuing education is becoming increasingly blurred, and that these sectors are consequently included in the overall system of indicators. In VET, in particular, there are several proposals and plans to coordinate and integrate the different frameworks of provision more strongly.

- In Italy, a sophisticated and complex programme evaluation approach to assess the quality in VET was developed by the National ESF Evaluation Unit (ISFOL 2002).[61] Basically, the VET system is modelled according to a supply structure on the one hand (encompassing the policy system for programming and financing, and the providers of training), and a demand system on the other hand (encompassing the participants in training and target groups for participation or “users” and the economic actors in demand for qualifications). VET is considered to be part of "active labour policy", which is why the

[60] See: Quality That Can Be Seen - Summary and Initiatives - 2000 (http://pub.uvm.dk/2000/kvalitet/16.htm); Facts and Figures - Education Indicators Denmark - 2002 (http://pub.uvm.dk/2002/factsfig/index.htm).

[61] This model has been developed by the National ESF Evaluation Unit of ISFOL within the context of the European Social Fund programming, to be used by the Ministry of Welfare and the regional authorities . See: ISFOL 2002.

results at the level of the employment system (the 'effects') are a key area for evaluation. Output, outcome, and impact are the dimensions of the 'product phase' that need to be assessed. The systems and mechanisms of policy development and provision of VET by the various actors are also extremely important. The main components to be assessed in this area of the 'process phase' are strategic programming, operational planning and implementation. Another key component in this connection is the established principle of programme evaluation, stating that a simple comparison of objectives and results could be misleading due to the complex relationships between the dimensions of process, output and outcome, and their interaction with the context. Therefore the context – in terms of economic and demographic development, and regulations determining the VET system – is considered as a third basic area (besides the product and the process area).[62] In order to obtain the quality of VET accurately, the relationships between the policy process, the supply process, and the outputs, outcomes and impacts must be analysed (and the context needs to be taken into account as well). These areas are broken down into a number of concrete quality elements, which will be the main units of evaluation, and then translated into the appropriate indicators for the analysis. Finally, in order to produce more comprehensive measures, the individual results have to be summarized by means of appropriate weighting procedures. This approach is used to evaluate ESF interventions which are implemented at a regional level.[63] The comparison among regions, and the relationship between the national and European level on the one hand and the regional level on the other hand are strongly emphasised in this approach. Within the context of ESF programming and evaluation the indicators in the categories of implementation, outcome and impact at the national and regional levels are meant to assess the broad policy objectives related to employability, equal access and adaptability/competitiveness. The quality indicators used to measure employability include, for instance, the gross and net placement rates of VET participants as compared to control groups and the respective variation by age, sex and duration of unemployment. To measure the access objective, they focus on the coverage rate of different target groups and the availability of support actions in individual training activities. The indicators have been adopted and are now in the process of being applied by all regional authorities. There are also plans to organize a process of bench-learning between the regions after the indicators are implemented. This approach, developed for the evaluation of the formalised ESF programme planning process, is rather demanding with regard to the availability of data and has high expectations for the rationality and comprehensiveness of the policy process.[64] The definition of quality of VET as an

[62] The process area in the Italian model is broader than the definition of process given above in section 2.1.3. It includes elements of context, input and process from the definition in this study.

[63] The results for the previous ESF programming period are summarized in ISFOL 2001.

[64] The ESF interventions require the set-up of a quite inclusive monitoring data base, which which is not commonly available to the VET systems. The ESF policy process is based on formal development and planning procedures targeted to certain objectives, which deviate more or less markedly from the structure of the overall VET policy.

element of “active labour policy”, and the emphasis on employment-related indicators is an important contribution of that approach to the assessment of quality in VET. Other important elements are the use of consumer satisfaction and the combination of quantitative and qualitative indicators.

- In France, an approach named “professionalisation durable” is currently in the process of being implemented at a voluntary basis in the state-owned VET institutions for adult education. As a result of this development, four different quality labels (CPEN, DPFI, ELEN, SRIF) now co-exist and are driven forward in a pilot phase which explores the possibilities of a comprehensive label named GRETA PLUS.[65] The label will be awarded to VET institutions that work in accordance with the needs of their individual or organisational customers; it is grounded in the availability of a policy for quality development that respects different criteria and indicators of quality. The continuing VET provider in Austria, which is run by the Chamber of Commerce, has also provided a report about its established practice of awarding a quality label. The statement argued in favour of quality assurance at a decentralized level and included some objections to setting overall standards, which would bear the danger of reducing flexibility.

- In Spain, a comprehensive set of indicators has been developed at the central level, which is currently being fine-tuned and will soon be implemented in cooperation with the regions. This set of indicators is supposed to cover the whole VET process and includes indicators of context, input, process, output and outcome.

- In England, quality measures and controls were developed separately for activities in schools and for activities taking place in other organisations. The indicators developed for schools are qualitative and quantitative. For example, each school is required to publish a report on the results of its pupils in all the qualifications taken each year. The Department for Education and Skills also produces "league tables" which show national results for each school. These tables are intended to help parents and children to "choose" schools. It is possible to evaluate the overall performance of the school in relation to the number of pupils. A "points score" indicator is used to show success in academic subjects such as GCE A levels. Indicators are also related to ages, gender, ethnicity and economic depression in each school. "Value added" measures are being published for the first time this year in school results. For post-16 VET providers the funding bodies collect, analyse and report on achievement and retention data for each of their providers in much the same way as for schools. At the moment the precise definitions of these data are not the same for schools, colleges and training providers, but the goal is to converge them in the near future. This will make it possible to establish a single set of indicators that is based on the same data sources. Both schools and LSC-funded VET are inspected by

[65] See: http://www.eduscol.education.fr/D0035/r_gretus.htm

independent inspectorates. OFSTED inspects schools and leads most further education inspections working with the Adult Learning Inspectorate (ALI). The ALI also inspects the work-based training provided by employers and training providers. These inspectorates operate on a four-year cycle. Their job is to assess the quality of the learning experience (process) and evaluate the extent to which learners achieve and/or are retained. They grade their judgements (on a five-point scale) and publish reports on each inspected organisation. This provides a quality indicator that shows the quality of both input measures and outcomes. One element, which is missing from all these indicators (except inspection), is an indicator for evaluating the quality of the training process. The existing indicators allow monitoring and evaluation of the input measures (including access) and output measures (including retention and achievement of qualifications). How can we devise indicators for the process of training? One of the two methods used in the UK is learner surveys to establish the pupils'/students'/trainees' views on the quality of the training they have received. The other main method used is inspection by independent inspectors who evaluate the whole process of learning from guidance at the start all the way to achievement and progression. The inspectors' grades, which are awarded to each subject offered by the provider, give a national picture of the quality of VET.

- Ireland provides an example for a comprehensive policy plan for the development of adult education, which has been set up in a broad and inclusive policy development process (Department of Education and Science 2000). The proposals and programmes included in the white paper are based on a thorough analysis of the state of Irish education and training, and on an inclusive consultation process among the various actors in the field. A broad approach for adult education is taken, which complements the goals related to the economy and employment with broader personal, cultural and social goals. A set of basic indicators about the educational status of the Irish adult education, and an overview about the various ongoing and previous policy initiatives addressing the field of lifelong learning portray the state of adult education in that country. Considerable emphasis is placed on the support of workplace education to improve employability. Several measures based on established forecasting and anticipation mechanisms to assess futures skills needs are proposed, which will help improve the matching of supply and demand.[66] Two main programmes offering second chances and further education are intended to improve basic competencies. Improvement of access for disadvantaged groups is one of the main broad policy objectives. The policy plan provides a blueprint for setting up a comprehensive institutional framework, within which the respective policy objectives can then be implemented. Concerning the assessment of the quality of adult education, mainly two layers are included in the policy plan: a system of self-assessment and

[66] See the activities of the Expert Group on Future Skills needs (http://www.skillsireland.ie/publications_press/reports/in_co_training/), cf. Expert Group on Future Skills Needs (2001).

external basement with the support and advice from the inspectorates at the institutional level, and a system to evaluate certain elements of the plan (e.g., the elements supported by European programmes), including an over-arching evaluation three years after the set-up of the proposed structures (Department of Education and Science 2000, 162-163, 199-200). The formulation of objectives is based on sound analyses, it is however, only to some extent translated into measurable results. Many objectives are defined in a rather open manner, measurable results are mainly formulated in terms of inputs (for main activities, the planned resources and the planned number of participants or training places are specified for a period of several years) and processes (e.g., the eligibility criteria and target groups, or measures to reach the targets groups are specified).

- The Netherlands – based on the law about IVET and CVET, which came into force in 1996 – are using quite a comprehensive and outstanding approach towards quality assurance and development and towards the use and measurement of objectives. The following characteristics ought to be highlighted in this connection:[67] Firstly, secondary VET and adult education was integrated into one common framework, aimed at the establishment of relatively large and comprehensive institutions at the regional level which combine all training "under a single roof"; secondly, the formulation of concrete objectives to guide practice was left to the institutions, although they are still based on a number of broad overall objectives (which are very similar to the three overall policy priorities of employability, matching and access) and on the formulation of national standards. The institutions also measure their achievment themselves, by means of a formalised reporting process that is based on a set of mainly technical guidelines written down in the form of legal requirements; thirdly, the reporting process for the required biannual quality assurance reports is monitored by the inspectorate at two different layers, the documents submitted and first-hand reviews at the VET institutions. This overall process, which has produced experience via three cycles of reporting and review so far, allows for a kind of 'bottom-up' development of concrete objectives relevant to the practice level, and for their translation into measurable results and related indicators. The formalized monitoring process also allows for the development of aggregate measures, which are based on the analysis of the reports and the first-hand reviews. In principle, a linkage between aggregate measures at the systems level on the one hand and measures at the institutional level on the other hand can be established step-by-step through a process of organisational and policy learning within this system. Two kinds of quality indicators are produced in this process: measures, which are used by the institutions to assess the realisation of their objectives, and measures which the inspectorate produces in the monitoring process. At that level, several qualitative indicators are produced about the degree to which the institutions achieve their overall objectives and have developed policies for improvement. However, it is stated that the

[67] This description is strongly based on the contribution by Verkroost/Jurna 2001.

measures used to assess quality at the institutional level are still very diverse and cannot be aggregated easily. They also have shortcomings in that the goals are not formulated in a measurable way in some cases. An important asset of the system at the institutional level is that the institutions are required to engage in a quality dialogue about objectives and achievements with their external stakeholders (community members, regional actors, employers, etc.). So far, the experience gained in evaluating that process has provided some interesting practical insights into the overall process of quality assurance. For one thing, the institutions have placed little emphasis on the output dimension in the quality assurance process; educational management and financial management are also rather separated and management information systems are not sufficiently related to the measurement and improvement of quality; and last but not least it is in many cases difficult to link the quality dialogue with interested parties to the internal process of quality development and/or to management information.

- A very important issue concerning the development and use of indicators, particularly for the priority of matching, is the establishment of systems to assess and anticipate the relationship between supply and demand for VET. The application of quantitative methods for forecasting or anticipation clearly presupposes a sufficient set of indicators about the main dimensions of VET. Therefore the development and implementation of an up-to-date method of quantitative forecasting and the development of data bases about VET and its outputs and outcomes have a kind of 'symbiotic' relationship. Good practice in this field is impossible without good data. There are also strong arguments for a feasible system of anticipation to use a combination of quantitative and qualitative procedures (as each of them used without the other one produces unsatisfactory results). A study performed some years ago (Feijen/Reubsaet 1996) has provided an overview of the anticipation practices applied in the mid-1990s in all member states of the EU15.[68] The study compiled an inventory of all qualitative and quantitative anticipation methods and observed which of them were in place in the member states at that time.[69] Econometric methods were used in virtually all member states for the purpose of economic or industrial policy, yet only in half of the countries was the application of these methods sufficiently disaggregated to be used for the purpose of development in VET. Some kind of substitutional relation between econometric models and the other, more qualitative

[68] About the practice of forecasting in OECD countries see Neugart/Schömann 2002. The study analyzes existing approaches in the following countries: US, Canada, Japan, Britain, Ireland, Netherlands, France, Austria, Spain.

[69] The quantitative dimension refers to the overall distribution of supply and demand for labour and skills: econometric models, extrapolation of trends, survey techniques, qualitative foresight methods (expert studies, delphi, scenario technique); the qualitative dimension refers to the development of competencies within qualification or occupational profiles: *formal methods* at the qualitative level: functional analysis, surveys (at a detailed level of activities or about strategic aspects), qualitative research with overarching methodology, action research, conference methodology (e.g., scenario technique); *informal methods* at the qualitative level: combination of methods (mainly surveys and specific qualitative research, tailor-made studies for selected activities), two types of working groups of field players (*only* for decision-making; or for data-gathering *and* decision-making (Feijen/Reubsaet 2001, slightly revised by the author).

methods was observed as well. At the qualitative level, different patterns were found among individual member states: some applied mainly formal methods, others mostly applied informal methods, and a third small group applied various combinations of the two. In the six countries, which had established econometric mechanisms at the quantitative level in the mid 1990s, the following patterns could be observed at the qualitative level: The Netherlands, Germany and the U.K. had applied formal methods; in Finland and Sweden the quantitative methods were combined mainly with informal mechanisms at the qualitative level; and in Ireland a mix of formal and informal methods was implemented at the qualitative level. No matter how far the practice may have developed and changed during the last decade, the observed patterns still indicate to which extent the developments build on established practices. Assessing the more recent development in the UK, Lindley (2002) points out that a lot of progress had been made concerning methodology, although the use of results at the institutional level continues to be a problem. In Germany, a broad and comprehensive research network has been set up to produce, collect and distribute information about trends and future developments.[70] This system is aimed at the "early identification" of qualification needs and at the distribution of research results within the research community as well as to practicians. It seems to have no strong, direct linkages to 'softer' assessment methods ('anticipation') or to the implementation of results. To improve anticipation and coordination of VET and employment in Finland, a comprehensive network of projects was established there during the first programming period of the European Social Fund (Kekkonen 1998). The informal mechanisms of anticipation seem to have been strengthened by the set-up of more formal coordinating bodies for sectors (OECD 1999).

The outlined examples show the various approaches in dealing with the use of indicators in the context of systems or activities of quality assurance in education and training policies. Different degrees of emphasis are laid on the dimensions of input and process vs. output and outcome, or on the use of qualitative or quantitative instruments, etc. A main question, which is still unresolved, is how to relate the use and development of indicators at the systems and policy levels to the mechanisms of quality assurance at the level of institutions and practice. Some countries try to deal with this issue from the top down, others rather use a bottom-up approach. The Netherlands example probably shows most decisively that a solution can only be found in a balanced approach that goes both directions.

4.2. Indicators – the "bottom–up" experience

The provided material was listed together with some European and international sources by Christof Slickers and Erwin Seyfried at the FHVR Berlin (Seyfried 2002). In sum, more than

[70] See: http://www.frequenz.net/

200 indicators were considered during this procedure. However, the sources don't always make it clear which of the indicators have actually been implemented. The following table comprises the indicators which have been derived from the country sources and which also catch *additional aspects* not accounted for in the European and international sources described in section 2.2.[71] About 60 indicators are included in the table (45 from country sources and 13 from the Riga conference materials). Two thirds (absolute 45) of these indicators can be related to a certain policy priority (the remaining do not sufficiently discriminate between the priorities of employability, matching, and access).

Table 17: Number of indicators from bottom-up experience distributed by policy priorities and stages of the implementation process

	Employability	Matching	Access	Total
Context	11	-	-	11
Input	6	1	1	8
Process	3	2	5	10
Output	4	-	-	4
Outcome	8	3	1	12
Total	32	6	7	45

The distribution shows that the context and the outcome dimensions are represented more frequently in the selection than input, process, and output. The following points can be observed:

- Employability is covered much more strongly than matching and access (32 : 6 : 7 indicators). Within employability, the dimensions of context (11 indicators) and outcome (8 indicators) are covered to a higher extent than the remaining stages of input, process, and output.

- In the priority field of matching, overall and indirect measures are more likely to be addressed than structural characteristics (like sectors, occupations, qualifications, competencies, etc.).

- The indicators about access only include a rather limited number of clear characteristics of certain groups, most indicators in that priority field are in the process dimension.

[71] The proposed indicators, which have been derived from the countries' inputs to the exercise of defining quality indicators for lifelong learning at the Riga conference, are also included in the table. These indicators have served as a basis for the selection of the quality indicators for lifelong learning considered above (Download of the result: http://europa.eu.int/comm/education/life/15indicators_en.pdf)

- Output is covered less frequently than the other stages of the implementation process. As achievement measures are not covered, the main output dimension for employability is missing.

- Some indicators (6) describe slightly different facets of participation in adult and continuing education and training.

- As the quality assurance procedures were taken as a separate focus when the data were collected, indicators about this issue are broadly included in the original table (they were, however, left out here).

- Financial inputs are not covered.

- Some rather complex outcome measures are included.

Table 18: Indicators provided from the bottom up, by dimensions of the implementations process and by broad policy priorities[72]

EMPLOYABILITY	MATCHING	ACCESS
Context		
Context: **POPULATION**		
Context: **INCOME, EMPLOYMENT STRUCTURE**		
16. a) female activity rate b) amount of female inactivity due to family burdens Objective: Increasing participation and strengthening women's position in the labour market	16. a) female activity rate b) amount of female inactivity due to family burdens Objective: Increasing participation and strengthening women's position in the labour market	16. a) female activity rate b) amount of female inactivity due to family burdens Objective: Increasing participation and strengthening women's position in the labour market
Context: **EMPLOYMENT, UNEMPLOYMENT, INACTIVITY**		
31. Percentage of young people with and without vocational qualifications who are employed or unemployed. A) Percentage of young people 18 to 30 with vocational qualifications a) in employment, b) unemployed, c) inactive, d) in education/training B) Percentage of young people 18 to 30 with no vocational qualifications a) in employment, b) unemployed, c) inactive, d) in education/training		

[72] The indicators and proposals, which were provided by member states and accession countries to the Forum and to the Riga conference and collected by Slickers and Seyfried (Seyfried 2002), are allocated to the various dimensions. The numbers were taken from the original source.

32. Percentage of young people with third level or academic qualifications who are employed or unemployed. A) Percentage of young people 18 to 30 with third level vocational qualifications a) in employment, b) unemployed, c) inactive, d) in education/training B) Percentage of young people 18 to 30 with third level academic qualifications a) in employment, b) unemployed, c) inactive, d) in education/training		
Context: **ATTAINMENT IN EDUCATION/TRAINING**		
Context: **BASIC STRUCTURE OF EDUCATION/TRAINING SYSTEM AND FINANCING**		
58. Participation rate in education and training % of population participating in education and training		
64. NET percentage of adults aged 25 and over (not full-time students) participating in non-employer-funded training in a given year.		
90. Proportion of employees participating in adult education in the course of a year		
92. Percentages of continuing education and training		
93. Participation in tertiary education		
94. Participation in adult education		
100. a) Coverage ratio of certification of skills with regards to job-seeking population b) Density of continuing training (amount of projects out of total training supply) Objective: Adjusting the vocational and the educational systems		
Basic financial indicators		
Context: **EDUCATION/TRAINING POLICY STRUCTURE**		
	97. Integrated system of vocational information and guidance. Number of users who receive vocational information and guidance services broken down by age, sex, sector and type of recipient (young, unemployed and employed)	97. Integrated system of vocational information and guidance. Number of users who receive vocational information and guidance services broken down by age, sex, sector and type of recipient (young, unemployed and employed)
127. Local procedures for quality assurance and quality development	127. Local procedures for quality assurance and quality development	127. Local procedures for quality assurance and quality development
125. Extent of use of action plans which are evaluated and updated with a view to development of staff and institutions	125. Extent of use of action plans which are evaluated and updated with a view to development of staff and institutions	125. Extent of use of action plans which are evaluated and updated with a view to development of staff and institutions
128. Internal quality assurance	128. Internal quality assurance	128. Internal quality assurance
129. Quality of training centres Number of centres with approved quality model, e.g. EFQM or other/total of centres		
133. Validation of competencies through exams organised with the participation of experts of the economic sector		
117. Local, regional and national institutions for evaluation by type of evaluation.	*117. Local, regional and national institutions for evaluation by type of evaluation.*	*117. Local, regional and national institutions for evaluation by type of evaluation.*
118. Existence of mechanisms (legal or other) monitoring outcomes of LLL	*118. Existence of mechanisms (legal or other) monitoring outcomes of LLL*	*118. Existence of mechanisms (legal or other) monitoring outcomes of LLL*

120. Provision for inspection/quality assurance systems of LLL institutions	*120. Provision for inspection/quality assurance systems of LLL institutions*	*120. Provision for inspection/quality assurance systems of LLL institutions*
121. Quality improvement systems in formal and non-formal education and their coherence.	*121. Quality improvement systems in formal and non-formal education and their coherence.*	*121. Quality improvement systems in formal and non-formal education and their coherence.*
122. Approval/verification of providers	*122. Approval/verification of providers*	*122. Approval/verification of providers*
	83. Availability of a formalised credit transfer system by level of education/type of programme *84. Number of persons having access to/registered in the system*	*83. Availability of a formalised credit transfer system by level of education/type of programme* *84. Number of persons having access to/registered in the system*
119. Evaluation and monitoring mechanisms of LLL providers	*119. Evaluation and monitoring mechanisms of LLL providers*	*119. Evaluation and monitoring mechanisms of LLL providers*

Input

Input: **FINANCIAL**

Financial indicators (overall)

126. Resource consumption for development work	126. Resource consumption for development work	126. Resource consumption for development work

Financial indicators (material)

Financial indicators (personal)

Input: **LEARNERS (PROVISION OF LEARNING OPPORTUNITIES)**

		60. Scope of education includes courses in Dutch as a second language, courses for semi-literate, illiterate
Provision (participation) in initial education		
6. Active policy to combat dropping out		
Provision (participation) in adult/continuing education		
64. NET percentage of adults aged 25 and over (not full-time students) participating in non-employer-funded training in a given year.		
101. Density of continuing training (amount of projects out of total training supply with regards to potential user) Objective: Promoting continuing education and training		
	82. Participation rates in continuing education and training by educators, by type of programme	*82. Participation rates in continuing education and training by educators, by type of programme*

Input: **TEACHERS, MANAGERS, ETC.**

132. Training given by qualified persons		
125. Extent of use of action plans which are evaluated and updated with a view to development of staff and institutions		

Input: **INSTRUCTION, CONTENT, COMPETENCIES**

	51. Design of courses as a response to the needs of the regional employment market. Vocational courses, given at vocational schools, are regulated and recognised by the Ministry of Education	
29. Teaching strategy is efficient with regard to employment prospects		

Process

(variables influenced by behavioural contingencies)

Process: **BASIC PROCESS CHARACTERISTICS**

	30. Institutions register the destination of the participants after they have completed the course	
	7. The education institutions take action in the event of problems linking up with the employment market and further education.	

Process: **ICT USE**

96. Pupils involved in distance learning a) Number of courses and participants involved in distance learning/total number of courses and pupils.		

Process: **SPECIFIC PARTICIPATION INDICATORS**

Overall participation by age groups, end of compulsory schooling

		98. **a)** Specific coverage ratio by type of advantage and annual variation Objective: Fostering the placement into employment of those at risk of social exclusion
99. **a)** Variation in number of recipients of continuing training **b)** Enrolment in higher schooling rate (with respect to potential population) Objective: Promoting continuing education and training		

VET participation indicators

Participation in work-based learning situations

Participation in tertiary education

International mobility experience

Process: **CONDITIONS OF EDUCATION/TRAINING PATHWAYS (PERMEABILITY)**

		62. Sufficient informative material is distributed and information meetings organised for the various target groups
88. Number of turned down applicants Supply profile	88. Number of turned down applicants Supply profile	88. Number of turned down applicants Supply profile
95. Applications a) Number of workers trained/number of workers applying b) Number of pupils registered/number of applications received.		

		106. Training accessible both to individuals with learning difficulties and particularly gifted individuals
		59. Participation in the preparatory and supporting activities is possible for participant with insufficient perspectives for the realisation of the attainment targets.
		61. Policy is aimed at a well-considered participation of men, women, native persons, racial minorities, the handicapped and participants from risk groups.
Process: **ELABORATED PROCESS MEASURES (CAUSAL FACTORS)**		

Output

Output: **COMPLETION OF PROGRAMMES, DROP OUT**		
4. No. of completions with certification 27. Completion rate		
15. Abandonment of activity Participants who abandon/participants starting course		
89. Completion and drop out rates, including time of dropout		
Output: **ACHIEVEMENT**		
5. Occupational practice rraining is adequate for the realisation of the attainment targets in question		
Output: **MOBILITY**		

Outcome

Outcome: **GENERAL INDICATORS**		
Outcome: **TRANSITION, EMPLOYMENT, UNEMPLOYMENT OF YOUNG PEOPLE (AGE)**		
Transition		
45. Transition from education to the labour market		
50. Incidence training/employment Pupils successfully completing course placed in employment/total pupils successfully completing course.		
91. Transition frequencies distributed by age and sex		91. Transition frequencies distributed by age and sex
		98. b) Specific placement rate into employment of integrated employment pathways Objective: Fostering the placement into employment of those at risk of social exclusion
41. Effectiveness of transition between formal and non-formal learning and the labour market.		

12. Transition from education to labour market/employment – unemployment by educational attainment		
Employment		
Unemployment		
35. Percentage of the population who are unemployed, seeking work, who have been on a training scheme for the unemployed, related to employment.		
Outcome: **OVERALL EMPLOYMENT, UNEMPLOYMENT (POPULATION)**		
	47. Links Number of pupils engaged in employment related to the studied profile/total number of pupils engaged in employment.	
48. Maintenance **a)** Participants who maintain stability in their employment/total participants. **b)** Placed pupils who remain in their employment/total placed pupils.		
49. Promotion Participants who improve their conditions of employment/total taking part in training activities.		
	34. Percentage of young people aged 18 to 30 in employment whose education/training has given them the skills needed for their present type of work. Classifications by: -lower secondary education -upper secondary education -third level education -second level VT -third level VT	
46. Insertion Placed pupils who finish with positive evaluation/total pupils who finish with positive evaluation.		
Outcome: **IMPACT, INCOME, RETURNS**		
42. Proportion of the economic growth that can be attributed to education and training	42. Proportion of the economic growth that can be attributed to education and training	
43. Employment frequencies determined by education and training	43. Employment frequencies determined by education and training	
	44. Unemployment and bottlenecks determined by education and training	
40. Relationship between outcomes of education and labour market: · *between the level of instruction and the first job* · *between the level of instruction and the actual job*	*40. Relationship between outcomes of education and labour market:* · *between the level of instruction and the first job* · *between the level of instruction and the actual job*	*40. Relationship between outcomes of education and labour market:* · *between the level of instruction and the first job* · *between the level of instruction and the actual job*
38. Relationship between level of instruction and type of job/unemployment rates for people with different educational levels	*38. Relationship between level of instruction and type of job/unemployment rates for people with different educational levels*	*38. Relationship between level of instruction and type of job/unemployment rates for people with different educational levels*
39. Relationship between level of instruction and income	*39. Relationship between level of instruction and income*	*39. Relationship between level of instruction and income*

4.2. How to select indicators

The next step in selecting indicators is to translate the objectives defined in section 3.2 into performance measures (for a discussion see section 3.1.2): What should be realised in measurable terms in order to achieve the specified objectives in the three policy priorities? The following three tables give a more specific overview of performance measures which would be ideal for implementing the three broad policy priorities of employability, matching and access. These performance measures indicate the actions, which need to be performed in order to reach the defined objectives, in a more concrete fashion. In a subsequent step, the reviewed indicators from the different systems can be related to these performance measures.

4.2.1. Employability

The performance measures for the implementation of the employability priority are focused on the development, provision, and acquisition of key competencies in IVET and CVET. The latter have not been commonly defined so far, therefore a broad definition of key competencies is proposed, including at least basic competencies (literacy, numeracy), ICT skills, social skills, basic work experience, and – for a growing share of the population – scientific literacy and competencies in Mathematics, Science and Technology. These kinds of competencies can be translated into performance measures at the levels of input (to which extent they are basically provided), process (to which extent their provision is secured by adequate procedures), and output (to which extent these competencies are successfully acquired). Their impact in terms of employment measures can clearly be observed at the outcome level. Performance measures at the level of skills achievement would be the most accurate measure of how well a VET system is able to improve employability. As it was pointed out before, employability cannot be seen as an individual trait alone. Therefore, so as to allow for accurate comparative assessment, the context needs to be taken into account as well.

However, as the measurement of competencies provided by VET is not very well developed yet, it makes sense to add more indirect performance measures that focus on the extent of participation in VET programmes and of skills acquisition at the end of a programme or course. Several performance measures are indeed used at that level. However, they often don't directly cover VET programmes, but rather more broad classifications of educational programmes (i.e. the ISCED levels). The challenge at this stage is to provide and use more specific and comparative classifications of VET (e.g., the ISCED classification of subject domains).

Concerning the outcome dimension, different measures of employment (and non-employment) characteristics, including the use of the acquired competencies and the returns

to VET, are applied. These measures are mostly at an aggregate level, and therefore don't allow any direct link to a specific VET programme.

Table 19: Performance measures for employability

Translation of OBJECTIVES into PERFORMANCE MEASURES

EMPLOYABILITY

IVET	CVET
Input - key competencies defined and included in curricula and learning material - provision of learning opportunities in key competencies - teachers', trainers' qualification for support of key competencies	**Input** - key competencies defined and included in CVET programmes, standards formulated - opportunities for acquisition of key competencies in CVET - provision of opportunities for competence development by companies
Process - combination of IVET and workplace experience - provision of apprenticeship schemes	**Process** - incentives for acquisition of key competencies - opportunities for updating competencies for workers employed in old (declining) sectors, competencies for new (growing) sector
Output - achievement of key competencies demonstrated - completion of IVET programmes at secondary, post-secondary and tertiary level - acquisition of recognised qualifications - prevention of (early) drop out	**Output** - achievement of key competencies demonstrated - completion of programmes and acquisition of recognised qualifications
Outcome - successful transition from IVET programmes to employment/further learning - successful employment (avoidance of unemployment and inactivity) of young people - skills and competencies needed for work (aggreg) - quality of employment of young people - balanced returns to IVET	**Outcome** - successful employment (avoidance of unemployment and inactivity), overall, for participants of CVET - inflow into new (growing) sectors - skills and competencies needed for work (aggreg) - quality of (new) employment (stability, income) - balanced returns for CVET

4.2.2. Matching

In order to measure how well the supply of and the demand for VET are matched, it is necessary to consider the information about this relationship on two different time scales: the

current situation and future trends. A basic requirement for any explicit performance measure in this context is the availability of a useful classification of the categories to be matched. Various dimensions can be used for that purpose: sectors, occupations, VET levels, qualifications, competencies. Another important aspect is the regional level, which should – in consideration of mobility – also be taken into account.

A basic context factor of the quality of matching, particularly in initial VET, is the extent to which the programmes are expected to provide the full set of skills and competencies for certain occupations (the degree of specialisation).

In order to provide measurable outcomes with regard to adaptation and innovation, the proposed performance measures for matching need to be related to the production of information (input), its dissemination (process) and feedback to VET providers (output).

The key concepts in this connection are the measurement of actual mismatch and the development of systematic anticipation and foresight. However, the experience with VET systems at these dimensions is rather insufficient. So far, the measurement of mismatch has been performed rather on an overall level, and the methods of anticipation have been widely criticised for their conservative tendencies.

Defining the performance measures for matching, one is confronted with two main challenges: one of them is due to the expectations for matching performance, and the other one to the complexity of the mechanisms used to improve matching performance. The first challenge concerns the formulation of *expectations* about matching, and particularly the somewhat contradictory and conflicting views about what areas should be targeted. For the purpose of simplification, we might list these alternative perspectives in the form of dichotomies: qualifications vs. competencies, specialised vs. decontextualised competencies, broad vs. narrow competencies, stability vs. mobility, adaptation vs. innovation, short-term vs. long-term perspectives, etc.

In addition to those decisions—about expectations, the reasoning about matching performance may also be related to very different reference levels or dimensions of abstraction. The standard views in labour economics about matching are primarily related to overall employment (without making any difference between qualifications, or sectors and the like), but recently the broader levels of education and training are also being taken into account.[73] From the viewpoint of resource–intensive, specialised VET programmes (their providers, or their students) a much more specific perspective on matching the produced

[73] The Beveridge curve has recently been reintroduced as a tool for measuring mismatch at aggregate levels of the labour market – in principle, it would also be possible to use that tool at more disaggregate levels, although a lot of research and further development in this direction still remains to be done (cf. Lassnigg/Markowitsch et al. forthc., Lassnigg 2002).

qualifications to respective employment areas is understandably taken – it would clearly be a kind of double-bind to try very hard to adapt to the changing demands for qualifications in the respective area but at the same time not to expect the students to be immediately mobile for access to any other area after they have completed a course or programme.

Table 20: Performance measures for matching

Translation of OBJECTIVES into PERFORMANCE MEASURES

MATCHING

IVET	CVET
Input - regular activities for collecting information about IVET demand from employers and young people (those having completed IVET and those choosing IVET) - exisiting practice for assessment of transition from IVET into employment	**Input** - regular activities for collecting information about CVET demand from employers and employees - regular activities for collecting information about transactions in employment and labour market - assessment of mismatch between supply and demand of qualifications and competencies - existing practice of anticipation and foresight
Process - mechanisms for translating the assessment of actual mismatch and of anticipation into IVET - comprehensive system of information, guidance and counselling service for support of IVET choices - system of credit transfer	**Process** - existence of comprehensive reporting system of information about supply, demand, and mismatch - existence of comprehensive ICT and webbased information system - existence of comprehensive system of information, guidance and counselling service - system of credit transfer
Output - information about demand, supply, mismatch and anticipation recognised by IVET providers - existence of regular feedback mechanisms from information, anticipation and foresight to IVET providers - required reactions by IVET providers to feedback mechanisms	**Output** - information about demand, supply, mismatch and anticipation recognised by CVET providers - existence of regular feedback mechanisms from information, anticipation and foresight to CVET providers (collective agreements in social dialogue) - required reactions by CVET providers to feedback
Outcome - adaptation of IVET supply to demand and mismatch information - measures and incentives for young people to adapt IVET choices according to information - innovation of IVET supply according to new and anticipated demand - utilisation of acquired competencies	**Outcome** - adaptation of CVET supply to information about demand and mismatch by providers, companies - measures and incentives to improve participation in CVET according to demand for adaptation - innovation of CVET opportunities by providers and companies - utilisation of acquired competencies

As the individual national or regional VET systems rank very differently in the multi-layered space outlined above, the expectations of matching performance may also vary greatly, even among different sectors of one particular VET system. Depending on where the observer is

situated in the space of expectations, there may also be contradicting views about the actual matching performance of a certain system. Ultimately, the expectations of matching performance rest on certain assumptions about the distribution of responsibility for the matching result between the providers of supply and the individual persons who complete the programmes. Here we are facing the well-known problems of market failure due to a lack of information and uncertainties about the future outcomes of decisions. The higher the discrepancy between the supply of programmes and the demand for qualification, the more adaptation is required from individuals. At the same time, they might be blamed for having taken the wrong choices. This problem seems to be perennial as long as VET programmes carry some component of screening, since a certain degree of oversupply is required as a source for selection.

The second challenge results from the complexity and unexplored nature of the mechanisms, tools, and instruments which may improve matching performance. If we consider the performance measures outlined in the table, we can easily see that in principle the requirements can be formulated rather clearly. However, hardly any standards exist about how to give operational definitions that will be sufficient to assess them in practice. If we want to compare VET systems as to their quality of matching, we need comparable definitions of the elements at stake.

4.2.3. Access

The performance measures for improving access as a quality dimension of VET focus on group-specific differences related to accessibility. Two dimensions can be distinguished: overall accessibility (or selectivity) and permeability of VET, and the problems faced by specific vulnerable groups when they try to gain access to VET. The overall accessibility of an education and training system should be taken into account as an important context factor.

The definition of group characteristics and of certain vulnerable groups represents a key problem when the quality of access to VET systems is assessed at a comparative level. At the overall level of accessibility, gender is a main characteristic which applies to IVET and CVET, family status is closely linked to the gender differences. The social background of young people is a main characteristic for IVET, for CVET it is the social and occupational status reached in employment and society, and the attainment level in education and training.

The definition of vulnerable groups is related to various more or less stringently defined characteristics: forms of disability, health problems, low achievement at school, low educational attainment and low competence levels, previous work experience in areas with low and/or traditional qualification levels, long-term unemployment or inactivity, age

(particularly older age groups), migration, forms of social dis-integration or exclusion. The Joint Report on Social Inclusion (European Commission 2002, 23-26) gives a clear description of the key risk factors that contribute to vulnerability:[74]

- long-term dependence on low/inadequate income
- long-term unemployment
- low-quality employment or absence of employment record
- low level of education and illiteracy
- growing up in a vulnerable family
- disability
- poor health
- living in an area of multiple disadvantage
- precarious housing conditions and homelessness
- immigration, ethnicity, racism and discrimination

The performance measures are related to the stages of the policy process in the following way: Input measures assess the needs and provide overall conditions for access; process measures are more concrete specifications of the supply of measures; output concerns the measurement of the coverage, acceptance and feasibility of that supply of measures to the target groups; and outcomes finally refer to the impact of the measures on the targeted groups in employment and society. This means that the definition of performance measures explicitly concentrate *on the measures* for improvement of access, also including the reduction of group differences. Thus the output of policy is the coverage of target groups by means of the measures implemented – focusing on the inclusion process as such, that would be input or process measures.

Various actions at the European level will certainly lead to an intensification and improvement of policies aimed at the inclusion of vulnerable groups. Especially the EQUAL programme can be expected to provide several innovative measures and new insights. The e-Inclusion Initiative and its relation to the Employment Strategy and to the Strategy for Social Inclusion will also encourage inclusion policies, which may in the near future result in the further development of measurement and respective indicators.

The measurement of the overall permeability of VET systems may bear the danger of a digital divide, which can affect broader parts of society than the vulnerable groups specifically defined by the key factors. The so-called 'Mathew Effect', a well-known phenomenon in the field of CVT, implies that those who have already had more education

[74] European Commission, Directorate-General for Employment and Social Affairs (2002) Joint report on social inclusion. Brussels (http://europa.eu.int/comm/employment_social/publications/2001/ke4202521_en.pdf)

and training are more likely to take advantage of continuing and adult education, whereas people with less education and training also participate less in CVT.

Table 21: Performance measures for access

Translation of OBJECTIVES into PERFORMANCE MEASURES

ACCESS

IVET	CVET
Input - definition of social characteristics (groups) and assessment of accessibility of IVET - definition of vulnerable groups for improving access to IVET - assessment of needs of vulnerable groups - right for access to (targeted) learning opportunities, outreach activities f. vulnerable gr.	**Input** - definition of vulnerable groups and of broader social characteristics (groups) inhibiting participation in CVET - assessment of needs of vulnerable groups - identification, accreditation, recognition of prior learning - right for access, outreach activities
Process - support measures to improve and broaden accessibility of IVET (information and guidance, financial, learning environment) - targeted measures against (early) drop-out based on social characteristics - targeted and taylor-made learning opportunities in IVET for vulnerable groups	**Process** - tageted and taylor-made measures for vulnerable groups - information and guidance, incentives and support to broaden and improve accessibility of CVET (formal, non-formal, informal) - competence development systems for the employed
Output - measures for permeability improved and less group differences (retention, repetition, duration, waiting periods) - support measures for vulnerable groups in IVET reaching their target groups (acceptance, coverage) - successful completion of programmes in IVET	**Output** - incentives and support measures accepted by target groups - support measures for vulnerable groups in CVET reaching their target groups (acceptance, coverage) - participation improved (less group differences) - successful completion of programmes in CVET
Outcome - transition to job opportunities and employment improved (less group differences, vulnerable groups) - retention of job opportunities improved (less group differences, vulnerable groups) - quality of employment improved (less group differences, vulnerable groups)	**Outcome** - transition to job opportunities and employment improved (less group differences, vulnerable groups) - retention of job opportunities improved (less group differences, vulnerable groups) - quality of employment improved (less group differences, vulnerable groups)

4.3. Selected indicators

A set of selection criteria for indicators was proposed by the indicator group of the Forum for Quality in VET:

- indicators should be clearly related to *objectives*;
- they should be part of a *system* or set of coherent indicators, measuring the most important dimensions of performance measures;
- a *limited set* of indicators should be measured, they should be easy to understand and clearly defined;
- indicator sets should combine *soft and hard* indicators, as the collection of hard indicators will not be possible at all dimensions;
- they should be sufficiently operationalised in terms of measurement, they should meet the standard *statistical criteria* of objectivity, reliability and validity;
- they should collect valuable information of *central importance* to the performance measures;
- the data should be available in a *timely* fashion, related to policy and practice decisions;
- and they should have a favourable *cost-benefit relation*, particularly with regard to the effort of data collection and measurement.

Based on the above considerations and on the specific selection criteria, the reviewed indicators from the different sources (international, European, and national) can be analysed in the next step. First of all, the selected indicators should be chosen primarily from available sets of indicators, as at least some experience is available about their application; and secondly, they should also cover the entire range of objectives and performance measures discussed above.[75]

The following tables provide an overview of the indicators selected from various sources.If we compare the available indictors to the performance measures for the implementation of the objectives, the following statements can be made:

- A number of indicators is available for each of the dimensions, but most of the single indicators only cover certain specific aspects. Therefore the dimensions cannot be described by a small number of simple indicators.

- The main dimensions of the three policy priorities are covered poorly by the indicators in use so far. This applies to achievement measures for competencies (employability), measurement of mismatch and assessment of mechanisms for the production,

[75] The selection provided takes the proposals of the Forum for Quality as a point of departure, see above footnote[45] and Seyfried 2002, particularly pp. 29-31.

dissemination and use of information (matching), definition and assessment of prevalence of vulnerable groups (access).

This means that, in order to measure the implementation and the outcomes of the three policy priorities, much remains to be done with regard to developing proper indicators.

Table 22: Quality indicators for employability

Quality indicators from national, European, and international sources: EMPLOYABILITY
Context
EUROPEAN, INTERNATIONAL SOURCES
Basic economic and employment indicators (growth, income, productivity, employment, unemployment, long-term unemployment, employees with insecure jobs)
Educational attainment of the population, completion of VET programmes
Unemployment by educational attainment
Youth in education, employment, unemployment and inactivity
Proportion of adults participating in lifelong learning
Households with internet access
Input
EUROPEAN, INTERNATIONAL SOURCES
Educational expenditure/GDP, share of VET
Participation in VET vs. general education
Unemployed, who received VET to improve skills and job prospects
Provision of mother tongue, foreign languages, ICT, other basic competencies in IVET programmes
Mother tongue, foreign languages, ICT, other basic competencies in initial and continuing teachers' education
Total business spending on job-related training as percentage of total labour costs
Employee participation in job related training (aggregate)
NATIONAL SOURCES
Provision of main language as a second language to semi-literate, illiterate
Process
EUROPEAN, INTERNATIONAL SOURCES
Percentage of VET participants spending at least 25% of training in work environment
Percentage of VET participants trained in ICT skills
Percentage of ICT use in classrooms
Placement in mobility measures
Missing: CVET indicators to process objectives
Output
EUROPEAN, INTERNATIONAL SOURCES
Percentage of participants who started and successfully completed VET (by type of VET courses)
Achievement of basic competencies in IVET
Percentage of 20-24-yr-olds whose highest level of education is ISCED 0,1,2
Percentage of 'early school leavers'
NATIONAL SOURCES
Completions with certification, completion rate
Missing: CVET indicators to output objectives
Outcome
EUROPEAN, INTERNATIONAL SOURCES
Education and work status of the young population; of the young population with low levels of education
Percentage of participants who after completion of training find a job in the field in which they have been trained and retain that job for a certain period of time, i.e. six months
Young employees with insecure jobs
Employees with insecure jobs changing into in new (growing) sectors

A main flaw of the indicators available for measuring employability is that measures about competencies are missing, or available only for selected aspects (ICT, languages) at the various dimensions of implementation. So far, the dimensions of process, output and outcome have been covered much less by indicators than context and input.

Table 23: Quality indicators for matching

Quality indicators from national, European, and international sources: MATCHING
Context
Measures for mismatch in the labour market, to be applied to VET categories
Input
EUROPEAN, INTERNATIONAL SOURCES
Participation in VET programmes providing a full set of skills for a given occupation Observation by enterprises of qualifications and CET demand of employees Observations by enterprises of future demand for qualifications Individuals reporting that they have the skills to do a more demanding job (Quality of) existing mechanisms for transmission of information to VET providers about recognised demands on the labour market
Process
EUROPEAN, INTERNATIONAL SOURCES
Involvement of regional/local bodies in determination of objectives, funding for VET Enterprises having a CET plan and/or a CET budget Percentage of yearly new and revised VET courses in response to the recognised demands on the labour market
NATIONAL SOURCES
Integrated system of vocational information and guidance (number of users) VET institutions register the destination of the participants after they have completed the course
PROPOSALS
Formalised credit transfer system
Output
EUROPEAN, INTERNATIONAL SOURCES
Spending on public labour market programmes Spending on training by enterprises (breakdown by sectors, etc.) Provision of VET by enterprises, participation of employees in CVET (breakdown by sectors, etc.) Evaluation of CET by enterprises
NATIONAL SOURCES
Design of courses as a response to the needs of the regional employment market The VET institutions take action in the event of problems linking up with the employment market and further education
Outcome
EUROPEAN, INTERNATIONAL SOURCES
Employed reporting that their formal skills are needed for present type of job; contribute to their present work Individuals, unemployed with VET to improve skills and job prospects who find it useful Impact of enterprise-based training, public labour market training
Utilisation of acquired skills at the workplace, from the perspective of both the employer and the employee

Matching is only insufficiently covered by indicators. As it was pointed out above, the measurement of mismatch has not yet been developed very well. The available measures are situated at a more aggregated level than it would be necessary for VET. Moreover, the objectives and performance measures for matching are mainly limited to the qualitative level,

i.e. they mainly measure the mechanisms prevalent to improve matching. So far, very few and selective indicators are available in that area.

Table 24: Quality indicators for access

Quality indicators from national, European, and international sources: ACCESS
Context
EUROPEAN, INTERNATIONAL SOURCES
People without upper secondary education in population Educational attainment of population: gender difference Educational attainment of parents Gender pay gap, gender absolute employment gap, unemployment gap, employment impact of parenthood Gender segregation in sectors, occupations Risk of poverty rate
Missing: prevalence of vulnerable groups
Input
EUROPEAN, INTERNATIONAL SOURCES
Participation rates at the end of compulsory schooling, vulnerable group: early school leavers Participation in VET by social background (Quality of) existing schemes to promote better access (orientation, information, validation of prior learning, etc)
NATIONAL SOURCES
Number of turned down applicants (break down by group characteristics) Policy is aimed at a well-considered participation of men, women, native persons, racial minorities, the handicapped and participants from risk groups
Process
EUROPEAN, INTERNATIONAL SOURCES
Public subsidies for support of students/households Formal opportunities in VET ISCED 3 for continuing ET at higher education levels (Quality of) existing monitoring, guidance and (financial) support schemes Availability of individualized training according to special needs
NATIONAL SOURCES
Integrated system of vocational information and guidance (number of users) Provision of main language as a second language to semi-literate, illiterate Provision of preparatory measures and supporting activities for participants with insufficient perspectives to reach the attainment targets
PROPOSALS
Formalised credit transfer system
Output
EUROPEAN, INTERNATIONAL SOURCES
Unemployed who received VET over past year (breakdown by social groups) participation rates of vulnerable groups in relation to prevalence
NATIONAL SOURCES
Specific coverage ratio of participants by type of (dis-)advantage and annual variation Training accessible both to individuals with learning difficulties and particularly gifted individuals
Outcome
Missing: percentage of participants from vulnerable groups who started and successfully completed VET (by type of VET courses)

The key dimensions for assessing the priority to improve access are not covered sufficiently by indicators: measurement of permeability, and of the prevalence of vulnerable groups. The available indicators point to some specific aspects in the overall mechanisms for providing access. It would be important to develop a comparative classification of vulnerable groups.

4.4. Discussion of the bottom-up practice as compared to the top-down experience at the international and European levels

The above tables have summed up the available indicators at the international, European and national levels. We can see that there is a large number of indicators which have already been tried and tested to some extent at the international and European levels. In many cases the national indicators are merely variations of these indicators at the transnational level, in some cases they cover new aspects.

Especially the indicators developed for assessment at institutional or programme levels (e.g., institutional monitoring in the Netherlands and the evaluation of ESF programmes in Italy, which were outlined briefly in chapter 4.1) cover new and additional aspects. However, because of their qualitative or selective nature it seems to be particularly difficult to mainstream these indicators.

Table 25: Number of indicators from national, European, and international sources by policy priorities and stages of the implementation process

	Employability		**Matching**		**Access**		Total
Source:	EU, international	National	EU, international	National	EU, international	National	
Context	6	-	-	-	6	-	12
Input	7	1	5	-	3	2	18
Process	4	-	3	2	4	3	16
Output	4	1	4	2	2	2	15
Outcome	4	-	2	-	-	-	6
Total	25	2	14	4	15	7	67

Some of the results regarding the selected indicators can be summed up as follows:

- In a first exercise, a total of 67 indicators were selected, which are in principle available for the measurement of the different aspects, only 13 ot them clearly add additional aspects.

- Employability is covered by a higher number of indicators (27) than the other two dimensions (18 and 22). The additional indicators from national sources contribute more to access (7) and matching (4) than to employability.

- In sum, input, process, and output are covered more frequently than the remaining stages, especially more frequently than outcome.

- There are some dimensions which have not been covered by any indicators so far. It would be necessary to have context indicators in the matching priority, in order to provide a frame of reference for the assessment of policies, and outcome indicators

in the access priority. In the employability priority, process and output indicators are still missing for CVT.

5. Systems of quality indicators for control and improvement

5.1. Control and improvement: complementary or conflicting?

None of the models discussed in the previous chapters makes a distinction between the different overall functions of a process of quality assurance, which is conveniently made between the control of implementation and results on the one hand and the improvement of practice on the other hand. One would think that these two functions would more or less "naturally" work together and reinforce each other in a system of quality assurance. Yet this is not necessarily the case – particularly if we speak about systems on a broader scale, which combine different actors (politicians, managers, practicians, learners, other stakeholders) and different levels of the system. The nearer a system is to the grass-roots level of institutional education and training practice, the easier will the combination of the two functions be on that "local" level – the more quality assurance is situated at an aggregate level for steering or coordinating broader "populations of institutions", the more difficulties will arise in combining them. Some of the most important issues that reinforce the split between control and improvement at these aggregate levels are the different and conflicting views about the goals and objectives among various actors, and the lack of a clear "technical" understanding of the causal linkages between objectives and practices for improvement. As there are also several different approaches and ideas about how quality assurance ought to be implemented and which crucial elements should be included in practice, these two functions can be combined in very different ways in a system of quality assurance.

So far, the two dimensions of quality assurance – control of policies on the one hand, and improvement of practice on the other hand – have rarely been combined in a comprehensive manner. In the field of programme evaluation, for example, these two functions have traditionally been kept separately under particular labels in different strands of evaluation theory and practice (e.g. summative and formative evaluation, or impact and process evaluation, or impact and implementation evaluation). Evaluation practice for the purpose of control (sometimes called the policing function of evaluation) has mainly been performed from a black-box perspective, focusing on the effects of measures without looking into the processes of delivery and implementation (at least in some policy fields there seems to be a somewhat paradoxical development: the more the methodology was refined, the more doubts about the validity of their results have come up among the evaluators). There have also been methodological cleavages between these different strands, as impact evaluation has mainly developed quantitative methodology, whereas the evaluation approaches aiming

on improvement have used qualitative techniques, or at least combinations of qualitative and quantitative methodology. Another trait of the two strands is that they have addressed their results more or less to different target audiences: evaluation for control to politicians and administrators, evaluation for improvement to practicians.

This separation of the two camps, however, was increasingly doubted and criticized as the use of evaluation practice became more common, and particularly as the different models and practices for quality control and quality assurance started to spread to different fields of activity. We should note that it was in the industry and business sector, where these models were developed first, since there is an important difference concerning the measurement of success between the different sectors. The measures of success are fairly clear for organisations that perform on the market (with limitations in the service sector), but they are much more complex and difficult to obtain for organisations not operating on the market. So quality control and improvement was very much related to reach at improvement of performance in terms of processes and products. The impact in this field is successful market competition (where also many different aspects are taken into account, which are, however, questions of business strategy hardly related to the process and practice of quality control and development).

The measures for success are less clear in the public sector, and we have to admit that particularly in policy-making success ultimately lies in another dimension than the material results of policy measures in certain fields. It has seldom been the case that elections were won because of successful measures or outstanding proposals in the field of education and training – although this does not mean that the policies in that sector may not contribute to electoral success. With respect to the question how quality assurance systems are and can be used for control and improvement, we can conclude that some very basic questions still need to be solved with regard to the definition of the main objectives and success criteria in VET as a field of public policy. Today, there is widespread consensus about new relationships between the state and the providers in education and training, i.e. it is commonly agreed that the state would have to set and monitor goals and their achievement, while various models of provision can be in place, including various forms of partnership. This means, at least in the first place, that the state has to control and the providers have to develop.

As far the delivery is concerned, this seems to be quite a clear division of responsibilities. The twofold complications of the linkage between the two systems, however, lie in the task of formulating the respective goals: Firstly, how the formulated goals are expressed (Are they formulated in a manner that would allow them to be monitored?), and secondly, how the process of goal formation is organised (Who is involved? Is it an inclusive and deliberate process in the public sphere? How are the different interests and stakeholders taken into account?). The first question has been addressed in detail in previous chapters of this report, and it seems rather easy to find solutions if appropriate formulations of goals are available.

The second question about the process of policy formation is of key importance for the linkage between control and improvement. It seems to be clear that both functions will work well if they are related positively to each other and that they will be impeded if they are in a conflicting relationship. In the latter case, the mechanisms for control will be affected because it will be difficult to get the necessary information, and the mechanisms of improvement might lack their creative impetus due to feelings of being mistrusted, etc. So there is a general case for the establishment of a positive relationship between control and improvement. The question also arises whether there may be not only an additive relationship between the two elements, but also a kind of interaction effect (resulting in a virtuous or a vicious circle), from which we could get added value in the case of a positive relationship, and losses in a negative relationship. We can infer from this proposition that quality assurance may not necessarily always have positive outcomes, and that in case of negative interactions having no quality assurance at all may be the better solution (at least in the short run). Considering this, the management of the relationship between control and improvement seems to be very important. An example of the interactions between control and improvement may be given by a comparison of quality assurance systems, which combines an accreditation mechanism aimed at the assessment and improvement of proposals (ex-ante control and improvement) and ex-post evaluation procedures related to the accredited programmes (control) with a procedure that rests only on ex-post control. The former set up a positive relationship (at least among those who have won accreditation), whereas the latter may even influence the evaluation procedure towards a negative notion of error detection, which is well known to have negative effects on learning. Another example concerns the sometimes advocated linkage between control and desired improvement via mechanisms of competition among providers or institutions (e.g., publication of results, rankings, or league tables). In some cases (e.g., in the segment of elite universities in the US) this model seems to work very well, albeit in other cases there is much criticism as to the positive net impact of this kind of mechanism. A key question in this context is whether this model can also work in a situation where quality assurance is newly established (i.e. where practice cannot build on previous experience in quality assurance and evaluation at all), or for organisations in the less developed and "poor" segment of the system. Deterioration may result first from not analysing but hiding the real situation (and thus spending the scarce resources for activities that do not have any impact on improvement internally), and secondly from the negative signals given to the public by the rankings, which may worsen the initial bad situation even more. It is rather doubtful that processes of this kind can lead to an overall improvement, because places for the clientele of the failing areas will hardly be provided in a timely fashion.

On a broader scale, we do not only have to consider the methodology but also the structures of the systems involved. Here a main issue is that we have to deal with large complex systems with complex relationships to their environment (e.g., business and the local community), in which the relationships between providers and policy makers are organised very differently in a space between hierarchy, market analogons, and (network) partnerships,

and are often differentiated even further by political and administrative demarcations of federalism. Therefore the control element in quality assurance essentially helps to obtain an overview and to prevent systems from becoming too fragmented and diverse. Knowledge about the main dimensions is thus an important policy condition for developing a comprehensive and coherent strategy for lifelong learning.

The complexity of systems is also due to the great variety of actors and interests, which can often be conflicting in some areas. The various interests have to be brought into and resolved in the process of policy formation. To achieve coordination in a system, the different actors must be included in cooperative relationships. Here we may try to find outwhat role a positive combination of control and improvement in a system of quality assurance can play in that process of policy formation. Asking this question, we must also specify to which levels and/or dimensions of VET the quality assurance system should be applied. For the purpose of establishing a European system of quality assurance in VET, specifications about the following two issues seem to be particularly important:

- quality of policy-making or quality of provision;

- the relationship between the European level and the levels of national systems, sub-systems and institutions.

5.2. Policy and provision

As it was mentioned at some points earlier in this discussion, there are important differences between the specific activity levels at which systems of quality assurance might be targeted. Therefore we should find out whether these levels do make a difference to the relationship between control and improvement. The distinction between policy and provision has been somewhat blurred by the new concepts of governance, micro-politics and the like, as these policy concepts involve a much broader set of actors and activities than the traditional concepts of state politics. We have already mentioned the process of policy formation and implementation, and the inclusion of the actors in these two processes is an important feature related to the working of quality assurance mechanisms.

How can we distinguish between the level of provision and the level of policy, and how do these distinctions relate to the control-improvement relationship? We can make three main distinctions between policy and provision: the first concerns actors, the second concerns the most important reference levels, and the third concerns the activities involved. These elements are closely related to each other as well as to features of quality assurance.

Despite the fact that the relationships between actors are changing, a clear distinction between politicians, administrators, providers, and practicians is still in place. In a traditional

hierarchical system these types of actors were linked by clear lines of command, and administrators and providers were more or less identical. Input and regulations about process were meant to result automatically in a certain output and outcome. They were also taken to be the main mechanisms that would lead to improvement, and control was strongly related to the enforcement of these rules and regulations. Now the new methods of provision have led to a differentiation of these relationships, making them more complex. Instead of command, new relationships of control and management are being established.

Concerning the control function, a differentiation should also be made between the aspects of accountability and steering. Accountability gives easily understandable signals about performance to the wider public. All actors responsible for the system will be interested in a system of accountability (as cheap as possible), which can signal good performance and good use of resources concurrently with the least risk of running into problems. The more developed accountability is, the larger is the number of inferences that result in demands for steering and development, and thus the more constrained will be the discretionary space of all categories of actors responsible for education and training. Steering is the main responsibility of politicians, practicians are mostly in charge of delivering education and training by supporting and improving the learning process, whereas the administrators and providers have to act as an interface between these two basic functions and thus take up a somewhat contradictory position between the other two groups. Control is more directly related to steering, whereas improvement is more directly related to learning. Thus, the different actors may have different interests in the two functions.

Output and outcome have come to be the main control dimensions for politicians, which has in turn also shifted the focus of providers and practicians. However, there are various conflicting notions about these dimensions of the policy process, as politicians (and maybe to some extent also providers) are structurally interested in maximising output and outcome while at the same time minimising input, but more or less indifferent to process and context. Practicians are clearly concerned with mainly process and input, and administrators and providers are situated more or less in-between (similar to the famous "sandwich position" of middle management). The latter probably comprise the actors with the most interest in a proper relationship between input and output, so as to serve the interest of both their "clients". In principle, we can also expect to find in these relationships of administrators and providers an inherent tendency to increase their share of control at the expense of politicians – politicians may react based on what they expect to gain politically from a better performance of the education and training system (politicians in power will have different interests as compared to politicians not in power, they will also have a different position with regard to the shaping of quality assurance).

The more public opinion focuses on issues of education and training, the more will politicians be interested in good performance measures (which are not necessarily related to "really" good performance). We can infer from these considerations that all actors have a principal

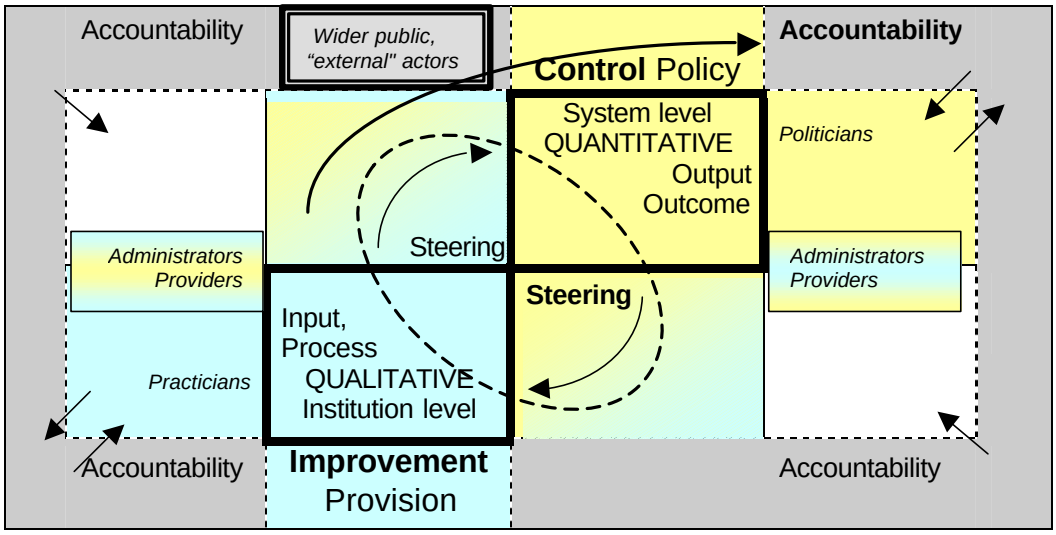
interest in *good* performance measures for output and outcome, and thus in control mechanisms which may be easily used to obtain good measures. The “external” actors (voters, taxpayers, learners, parents, etc.) are interested in “real” good performance, and thus in valid performance measures. However, because of the various information problems involved in the assessment of quality, they are in a comparatively bad position to assess the measures which are mainly defined by “internal” actors.

The improvement function plays a much more contradictory role in that system. If performance is (fairly) good, improvement must be grounded in external reasons. Consequently, different positions will arise among all types of actors, some interested in improvement on intrinsic motivations, others in favour of the status quo, minimising effort, etc. If we assume that improvement always presupposes some additional effort (which also needs some additional resources at the expense of someone in the system), some kind of additional investment will be necessary. Here we cannot expect too strong an interest from the politicians in power, or from the intermediate groups of providers and administrators, since they would be in the position of raising the funds necessary for investment (with risky expectations of additional returns). Of course, if we assume that improvement can be made without additional inputs, by “rationalising” processes or reducing slack, the positions will be different. With respect to the different groups, we can conclude that in case of good performance measures there won't be a high interest (at least in the short run) in quality assurance systems for improvement, except maybe among actors in the system who are highly intrinsically motivated tp improve practice (the so-called "reformers", i.e. professional groups interested in reform), and among political actors not in power, who might expect to draw potential voters that way. The main point here is that no clear predictions can be made beforehand as to whether the results coming out of the quality improvement system will lead to a demand for additional resources (from politicians, or providers) and efforts (from less intrinsically motivated practicians).

If performance is not so good, a diminishing interest in control can be expected among all actors except for the “external” ones and the “reformers”. With regard to improvement, the input dimension will be contested the most. Politicians will tend to defend the existing input level, demanding more effort from the other actors. From the viewpoint of practicians more inputs will be required in order to get better results. As a consequence, the process dimension will receive more attention, because it is at this level that the input-output relationship is in fact determined. The class-size debates, for instance, and their relation to “productivity” issues can be found right at the core of that field. The improvement function, on the other hand, ought to relate the results to input and process, and take into account how inputs are related to process and how the overall relationships of input, process, output are influenced by context.

To sum up these considerations, we might provide a small model of how the control and improvement functions are related to some of the stylised dimensions that are important for systems of quality assurance (actors, levels, stages of the policy process).

Diagram 12: Model of interrelated dimensions of quality assurance



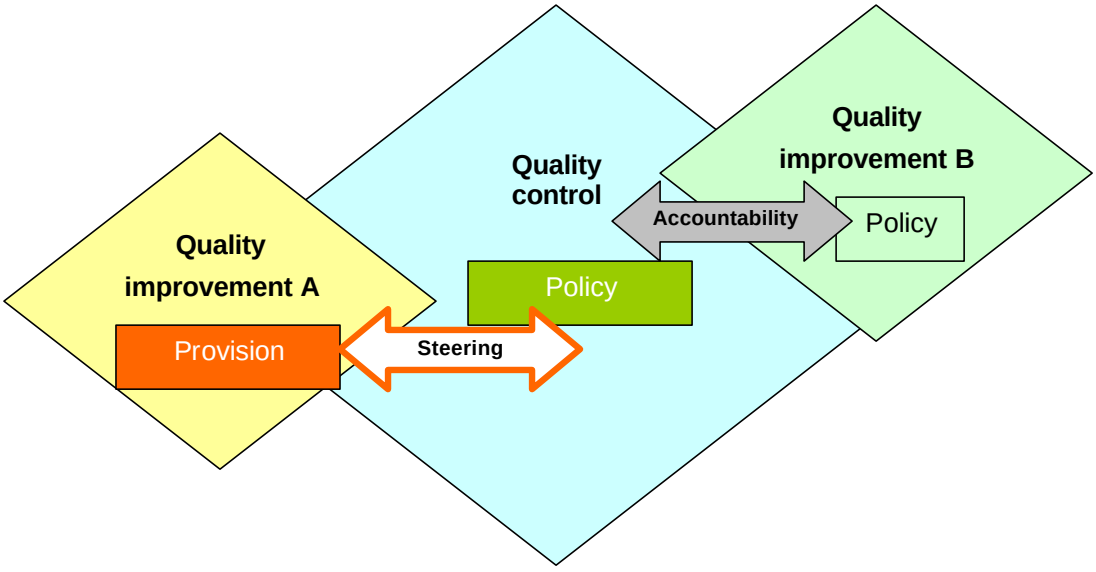
The stylised model shows that we can identify the control function and the improvement function as two main fields of quality assurance where some of the main dimensions are clustered together. The control function includes emphasis on policy-making at the system level, quantitative approaches, and the output and outcome stages of the implementation process; the improvement function includes emphasis on delivery at the institutional-organisational level, qualitative approaches, and the input and process dimensions of the implementation process. If we split the control function into the aspects of steering and accountability, we can see that these may function as a kind of integrating media between the two clusters. Steering can be a core medium to combine the two functions (which may include different combinations of top-down and bottom-up approaches), and accountability can work as a medium for the improvement of single functions as well as for the integration of the whole system.

A closer look at the relationship between these two clusters, and their interrelations, shows some interesting asymmetries: the control function enables the politicians to assess themselves and the practicians and/or the providers and/or administrators; the improvement function enables the practicians to assess themselves (with different possible positions for the providers and administrators). However, if these clusters remain separate there seems to be no reciprocal path for the assessment of politicians by the practicians.

Assessing the relationships between the control cluster and the improvement cluster, we can see that control mechanisms may influence practice indirectly, without explicit improvement mechanisms, by putting pressure on the practicians and or the intermediary actors. Yet as long as the improvement mechanisms remain separate from the control mechanisms there obviously won't be a reciprocal indirect path to influence politicians. This incomplete or unbalanced relationship shows how important it is to have mechanisms of steering and accountability: a steering system may or may not set up that reciprocal relationship, depending on how the balance of top-down and bottom-up processes is constructed; accountability may be an even more powerful mechanism to assure quality at the policy level and among politicians.

This means that accountability sets up a partial control function for the assessment of policy. The control is only partial, as it allows for the assessment of quality but does not provide the practicians with reciprocal powers to influence the policy actors. Thus, at the level of this control function, the set-up of proper mechanisms for accountability brings a certain degree of coincidence among the practicians, the learners and the wider public for the assessment of policy-making. However, there seems to be no similar coincidence at the improvement function: improvement of policy-making is not the same thing as improvement of provision. A separate quality assurance mechanism must therefore be envisagedfor quality improvement in policy-making. The core functions of this mechanism may be the process of goal setting, the formulation of objectives and performance measures, and the provision of the necessary conditions for the achievement of the objectives. If we look at the European initiatives of the Employment Strategy, or the policy model at the bottom of the structural funds, or the newly introduced policy of open coordination in the field of education and training, we can see these initiatives as different models of quality improvement in policy-making in the European Union.

Diagram 13: Quality control and improvement of provision and policy making



5.3. Interplay between different levels: European, national, sub-systems, institutions

We have already pointed out the complexity of national systems, which are more or less integrated compilations of sub-systems, and the difficulties encountered in setting up a comprehensive system of quality assurance. With this in mind, what can we expect for quality assurance at the European level? Based on the differentiation developed before, we may ask which of the functions could be feasibly developed or implemented at the European level.

Taking into account the considerations about the relationships among actors and the conflicting interests of the various actors, we can conclude that within a national system no one of the responsible actors will have a strong and direct interest in accountability at the systems level. Since this is an important function, not only in moral and political terms in a democratic system but also in functional terms, fostering and supporting accountability may be quite important at the European level. As we have shown that quality improvement inpolicy-making is not included naturally even in the most comprehensive system of quality assurance in education and training, this might play another important role at the European level. We have also illustrated that policy improvement is strongly linked to accountability, which is why they are reinforced to become the core functions of an initiative for quality assurance at the European level.

The logic of the Employment strategy relies very much on the development of outcome and output indicators, but also on the formulation and assessment of policies and performance measures to achieve these output indicators. The yearly process of assessing and updating the employment guidelines and, accordingly, of the national action plans can be clearly seen as a combination of actions to encourage accountability and policy improvement at the European level. Similarly, with different procedures involved, the interventions supported by the structural funds are also geared towards the formulation of policy programmes according to the broadly defined objectives at the European level, and towards an analysis of the national or regional situation. Based on the Lisbon conclusions, those who are in charge of developing concrete objectives for the education and training system via a process of open coordination can learn from the processes that were set up earlier.

This would mean that all activities should focus on two main issues: on the formulation of a set of outcome and output indicators in accordance with the achievement of the main goals and objectives on the one hand, and on the establishment of mechanisms for policy improvement in accordance with the achievement of the agreed goals and objectives on the other hand. The development of an overarching model of quality assurance, which includes control and improvement and spans the different levels of aggregation, doesn't seem to be a very reasonable attempt, considering the different systems of provision, the different practices of policy-making, and the different forms of steering for systems and sub-systems.

Taking higher education as an example, we can see that the largest number of activities takes place at the level of institutions, which in many systems have a strong tradition of self-governance. Several attempts are currently being made in this sector – reinforced by the Bologna process – to develop quality assurance systems at the level of national and international networks and associations of institutions, leading to the formulation of quality criteria for quality assurance. This process concerns the improvement function at the institutional level, and by itself leads to further differentiation and internationalisation of the higher education sector. Yet it does not necessarily lead to an overall improvement of the whole higher education sector, as complex distributional questions may also arise from this process. Some excellent institutions, for instance, may improve more and get more resources at the expense of many other, less excellent institutions, thus leading to an overall decrease of the number of graduates that is produced by the system.

5.4. Indicators and the control-improvement relationship

Various attempts have been made at the national level to develop comprehensive systems. Several examples were outlined above (section 4.1), but some serious challenges still remain to be tackled.

One challenge concerns the acceptance of quantitative and often economic indicators as instruments for improvement at the levels of practicians and providers. One may ask to which extent these economic measures should in fact be considered as minimal but not exhaustive requirements for quality of VET. This would mean that the additional performance dimensions should also be defined in quantitative terms. This has been tried to some extent with social objectives for the access to VET.

Another challenge concerns the relation between top-down control and the decentralised provision of VET. Both sides, institutions and national systems, seem to be somewhat reluctant to establish a strong linkage between the overall indicators and the performance measures at the institutional level. The Dutch, the Danish, and the Flemish experience give certain insights into these tensions.

Another specific problem is to be found at a more technical level. The indicators about input, process, and output are relatively easy to obtain at the institutional level. However, there is a structural gap to the outcome measures, as these are mostly not directly related to the institutions and can thus also not be controlled as much by them. An assessment of the outcome for institutions would principally require longitudinal data about their students, which are mostly not available (or strong linkages between different data sources, e.g., education and employment records). To some extent this gap can be bridged by using available regional data or good data about age groups. But again, it turns out that the kinds of data which would be of sufficient quality to assess VET, i.e. which would be suitable to allow for

reliable conclusions about improvement, are also not always easily available (data sets based on sample surveys are often not representative at the regional level, or for smaller subsets of the population).

6. Issues of implementation

6.1. Which indicators for which purpose?

In order to implement a system of indicators for quality in VET that measures the performance at the three policy objectives of employability, matching, and access we must first take into account that the available indicators do measure these objectives only to a limited degree. Implementing them would require much effort, as new, feasible indicators would have to be developed.

Several indicators, which can be allocated to policy priorities and objectives, are already in use across the EU. Some indicators need improvement, some indicators are missing altogether. All in all, some very important aspects are still more or less missing at each of the three policy priorities. Whenever indicators are developed, one should also take into account national practices and experiences, even though the review of national indicators has not added much to the systems available at the international and European level. This is largely due to the fact that the transnational systems have taken national experience with indicators as a point of departure, and national experience does continuously and greatly contribute to the development of the transnational systems.

With respect to the further development of the indicators for matching and access, related activities have evolved at the European level. The European competitiveness report has started to cover the matching priority, and the strategies for social inclusion and *e*-inclusion have taken important steps towards the access priority. The experience that will be gained from the EQUAL programme will further support this priority. The interrelations between these activities and the development of quality in VET should be utilised in developing the necessary indicators.

A key issue in connection with the implementation of indicator systems to improve quality concerns the relationship between the implementation stages, and also the consideration of context. In fact, if we want to make any rigorous assessments of quality of VET, these stages must be brought into systematic relationships, which would allow an analysis of causal linkages between the respective stages. The definition and comparison of indicators is thus only a first stage in a process of rigorous quality assessment. This means that models must be developed which allow us to test the relationships between input – process – output –

outcome, and which can, above all, single out contextual influences. However, this mainly seems to be of concern at the research level.

Further work on that system would bring additional knowledge about the functioning and potentials of VET systems. It should be investigated, though, whether the development and implementation of a comprehensive system of this kind is really a necessary condition at the European level for the improvement of quality in VET at present. Some important questions in this respect are: firstly, how do we cope with the variability of VET systems, the variability of concepts of quality, and the variability of quality assurance mechanisms; secondly, how should the quality of VET be embedded in the arising concepts of lifelong learning; and finally, how should quality of VET be assessed in relation to broader concepts of competence development systems.

6.2. Variety of VET systems, quality concepts, and quality assurance

Meaningful indicators have to measure comparable things. However, it is clear that VET systems in Europe are in many respects quite different. Not only do their internal structure and the conception and distribution of programmes differ, but also their overall positioning within the education and training systems. The relation to general education or to different layers of higher education, for instance, is very different in some cases; the same goes for the shape and purpose of programmes in relation to certain job profiles (the degree of specialisation, the ambition to train for comprehensive occupations, etc.); apprenticeship and work-based learning are institutionalised on different scales and in different forms, etc.

On the other hand, mechanisms of quality assurance are and might be used on very different scales, according to different principles, and with different degrees of comprehensiveness in terms of coverage, purpose and levels. Quality assurance mechanisms are applied at the level of programmes, at the level of institutions, at the level of sub-systems, and sometimes also on a scale spanning various types of institutions or sub-systems, on a regional or national level. The functions of control and improvement may be combined and distributed very differently. The concepts of quality that are assessed may also vary in terms of the aspects covered, or in the rigour of assessment. The systems differ in their emphasis on self-evaluation and external evaluation, the assessment of final grades and of examinations is different, etc.

So, how can the European level be reasonably related to this variety? One possibility would be to create certain standards for quality assurance, and to compare systems according to the coverage of these standards. They should probably be composed from a set of partial standard mechanisms related to the levels and functions of VET systems, and also be weighted according to the impact of VET within the overall education and training system. A 100% coverage of a VET system, which includes only a small part of total education and

training, by proper quality assurance mechanisms may have less impact than a broad system with a coverage of, say 50%.

Another, and of course complementary, possibility would be similar to the mechanism of the employment strategy – namely to define and monitor a limited set of outcome and output indicators, which are related to certain overarching policy goals, at the level of policy control, and to give the member states discretion over how they develop their strategy to achieve these goals, and how they align this European mechanism with their own national mechanisms of quality control and improvement.

One remaining question concerns the inclusion of VET in the development of concrete objectives in the Lisbon follow-up. Employability is clearly related to the goal of improving competencies, and the priorities of access and matching could contribute to the goals of accessibility and of opening education and training systems to the economy and to society.

6.3. Lifelong learning, systems of competence development and employment systems

So far, the issue of quality indicators was discussed separately for initial VET and for continuing VET. However, it is clear in principle that the more or less scattered education and training systems should be combined into systems of lifelong learning. In practice, this integration doesn't seem to function without frictions and resistance. Therefore, quality assurance obviousuly ought to focus on that goal.

We also have to ask how the development of systems of quality assurance in VET might be related to the development of lifelong learning. From an institutionalist point of view, we should expect that by establishing strong systems of quality assurance we will in some ways also construct reality, i.e. by strengthening and reinforcing the system under assessment. Consequently, strong quality assurance of VET, maybe even separately for IVET and CVET, may in fact also promote tendencies towards compartmentalisation of the overall education and training systems and thus hamper the development of lifelong learning. In consideration of this, the issue of permeability seems to be a very important aspect that must be covered by quality assurance as well.

Another issue, which concerns the comparative assessment of VET, is the rather influential idea that the relationship of training and employment should be seen as an overarching system of competence development, which in fact spans the education and training system on the one hand and the employment system on the other. This means that complementarities would exist in a certain system between these sub-systems, including different allocations of functions on either sides of the relationship. Some functions or elements, which can be found within initial training in one system, might be performed in the

enterprise sector in another, maybe compensated by different wage relations (this concerns the relationships between formal and informal training, and the relationship between VET and HRD, and the actual and potential functions of enterprises in the systems of competence development). Another concept that applies here is the idea of certain frameworks for the transition from school to work. If these ideas turn out to be true a kind of "sample selection bias" may arise for the development of comparative quality indicators, as different shares of the overall functioning of the system might be measured by the assessment of the VET side alone (and leaving out different shares of the functions of the HRD system).

7. Conclusions

This study represents an attempt to take stock of all indicators available for the measurement of quality in VET. Two sources were reviewed for this purpose: a set of international and European indicators systems, and indicators from national sources that were collected by the Forum for Quality in VET. A detailed framework was used to analyse these indicators. One dimension of that framework comprises the more or less conventional stages in the process of implementing and delivering VET (input-process-output-outcome and context). The second dimension covers the three policy priorities for VET at the European level, i.e. to improve

- employability,

- matching of supply and demand, and

- accessibility with particular attention to vulnerable groups.

Considerable emphasis is placed on the distinction between indicators used to assess the quality of policy making and indicators used to assess the quality of provision. In this analysis, the key assertion is that indicators for the assessment of policy must focus on how goals and objectives are defined, and how they are translated into measurable performance measures. These performance measures can serve as the bottom line, to which the observed performance measures at different stages of the implementation process can be compared.

The three policy priorities were analysed based on the definition of reasonable performance measures for each priority during the stages of the implementation process. Various European programmes and activities referring to education and training (ESF, employment strategy, skills and mobility action plan, communication about lifelong learning, the concrete objectives in the Lisbon follow-up) were screened and the resulting data were then used as an important source for assessing the respective performance measures.

Some key concepts had to be developed in order to define specific performance dimensions that would constitute a difference between the three policy priorities. These concepts, which should allow for the allocation of indicators to the different priorities, include the following:

- Indicators measuring employability should ideally refer to the acquisition of competences that will improve (high-quality) employment prospects – indicators which do not measure competences are second best for observing employability. Indicators which are based on the overall employment performance do in fact not discriminate between the overall conditions of the labour market or the employment system and the specific performance of VET.

- Indicators measuring matching should distinguish between the structural dimensions of employment (e.g., sectors, occupations, qualification profiles or levels) – indicators which do not make these kinds of structural distinctions will not sufficiently measure the matching performance of VET.

- Indicators measuring access should distinguish between target groups, either at a general level (to assess the overall accessibility and permeability of VET) or at the specific level of specified vulnerable groups – indicators which do not make this distinction between target groups will not sufficiently measure accessibility.

The available indicators from international, European and national sources were in a next step classified on the basis of the defined performance measures. As a result, we found that a large number of available indicators provide information related to the three policy priorities. They do, however, not or only poorly cover the key aspects of performance. The national sources have not added very much to the indicators available at a comparative level. But this is not really surprising, as the comparative sources rest more or less on national sources, and are also developed cooperatively.

The question now is how we should proceed with regard to the further development of indicators. How do we fill the framework properly? First of all, it seems to be impossible to reduce the space of the framework substantially without loosing some main elements of quality assurance according to the policy priorities. Moreover, the framework seems to be a productive instrument to improve quality, particularly at the policy level. Thus our efforts should continue to focus on filling the space, especially at the research level. We also came to the conclusion that the framework is most likely too complex to be fully implemented at the level of European policy.

Considerations about the development of comprehensive indicator systems, which might serve the functions of control and improvement simultaneously, have led us to believe that there are some asymmetries and conflicting interests among the different actors involved. One important asymmetry, for instance, is that improvement of policy and improvement of

provision need different systems of quality assurance, whereas the control function does converge at proper mechanisms of accountability. Accountability and balanced steering systems seem to be the key elements that might allow for a combination of the mechanisms for quality control and for quality improvement, which are presently still more or less separate.

The complexity of national VET systems and systems for quality assurance clearly limits the degree to which the European level can influence national development to certain functions. But accountability and quality assurance mechanisms for policy improvement, which seem to be limited to the national level, could surely be promoted at the European level. The mechanisms of the employment strategy might also serve as a proper model in the field of education and training policy, whereby the given legal and regulatory basis of responsibilities at the European and national levels should of course also be taken into account.

There are two more aspects which seem to be very important in the area of comparative quality assurance in VET. The first one is the question of how quality assurance of VET should be embedded in the support of lifelong learning systems. Reinforcing the compartmentalisation of education and training systems by the institutionalising effects of strong quality assurance systems seems to be somewhat risky in this conection. Thus, VET should be integrated in the whole system rather than separated from other sectors by the aforesaid mechanisms of quality assurance (i.e. IVET and CVET should be assessed as far as possible in integrated systems), and overall accessibility and permeability should be emphasised as being just as important as the issue of accessibility for vulnerable groups. Closely related to the idea of lifelong learning is the question of how VET is in fact integrated into more comprehensive systems of competence development, including the human resource activities in the enterprise sector. As some influential research has shown, there may be functional equivalents of certain elements of competency development which might be situated in VET in some systems, and in the enterprise sector in others. The development of these overarching systems of competence development should thus also be taken into account in this connection. Apprenticeship, just to name one example, should certainly be included in quality assurance at equal terms.

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9. Annex

Table A1: Indicators from general indicator systems in the main European and international publications related to education, training and human resources

EU structural indicators[76]	ILO-KILM[77]	Employment in Europe[78]	NAP (JER 02)[79]	Innovation trendchart[80]	Competitiveness (2002 Scoreboard)[81]
General context dimensions					
		Total population			
		Population 15-64			
				Adult population with home internet access	
GDP		GDP	GDP		
				Public R&D expenditure	
				Business R&D expenditure	
				Innovation expenditure in manufacturing	
Education, training and human resource development systems					
Context, baseline					
	Educational attainment and illiteracy				
Input					
Spending on human resources			Public expenditure on education/GDP		
				Total business spending on job-related training as percentage of total labour costs	

[76] Download: http://europa.eu.int/comm/eurostat/Public/datashop/print-product/EN?catalogue=Eurostat&product=1-structur-EN&mode=download

[77] See: http://www.ilo.org/public/english/employment/strat/kilm/index.htm

[78] Download: http://europa.eu.int/comm/employment_social/news/2002/sep/employment_in_europe2002.pdf

[79] Download: http://europa.eu.int/comm/employment_social/news/2002/nov/jer2002_draft_en.pdf

[80] Trendchart, Indicators (http://trendchart.cordis.lu/Scoreboard/scoreboard.htm) and the EIS 2002 - Technical Paper No. 5 Life Long Learning for Innovation (http://trendchart.cordis.lu/Reports/index.cfm) has proposed an interesting set of indicators, measuring four areas (learning economy; foundation skills; participation in lifelong learning; investment in lifelong learning), which are given in *italics*.

[81] EC (2002) Benchmarking Enterprise Policy. Results from the 2002 Scoreboard. SEC (2002) 1213. Brussels: EC Staff Working Paper, 90-93
(Download: http://europa.eu.int/comm/enterprise/enterprise_policy/better_environment/doc/sec_2002_1213_en.pdf).

				<u>Proposal:</u> training for personnel directly related to innovations	
				<u>Proposal</u>: Household expenditure for (non-traditional) education	
			Internet coverage in schools		
			Teachers with IS literacy		
			Activation rate, training measures		
			Effectiveness of activation, training measures		
Lifelong learning participation			Participation in education and training	Lifelong learning participation *- overall* *- participation of men 25-64, not employed*	Participation in education and training
				<u>Proposal</u>: Percentage of adults enrolled in adult education courses	
				Job-related training courses of employees	
				Participation of adult population in a computer training course	
				Wish to keep learning all their lives among adults	
<u>Output</u>					
				Foundation skills young PISA: *- reading at level 3 and above* *- reading level 5* *- comfort with computers*	
				<u>Proposal</u>: ICT literacy level among population	

				Foundation skills adults: - IALS, level 4/5 for quantitative literacy	
S&T graduates				S&E (T?) graduates/20-29 population *- proportion in population - change in employment share*	Tertiary graduates by field of study
				Population with 3rd education	Graduates of tertiary type A and adv. Res. Programmes
					-Math achievement, - literacy rates Math, Literature, Science
Early school-leavers not in FET			Rate of early school-leaving		
Outcome					
					ICT skill shortages
				Proposal: Ratio between over- and underskilled: mismatch	
Employment, labour market systems					
EMPLOYMENT, ACTIVE LABOUR FORCE					
	LF participation rate	Activity rate			
		Total employment			
		Population in empl. 15-64			
Employment growth			Employment growth		
Employment rate	Employment to population ratio	- FTE ER 15-64 - ER 15-64 - ER 15-24 - ER 25-54	- FTE ER 15-64 - ER 15-64 - ER 15-24 - ER 25-54		
ER older workers		- ER 55-64	- ER 55-64	*ER 55-64: maintenance of economically useful skills among older workers*	
	Status in employment	- Self-employed	Rate of self-employment		
				Empl. In medium-high and high-tech manufacturing	
				Empl. In high-tech services	

			Gender abs. employment gap		
			Employment impact of parenthood		
			Gender gap in empl.		
	Employment by sector	- Empl. services - Empl. industry - Empl. agricult.	ER in services		
				<u>Proposal</u>: Job mobility in high technology sectors	
				Share of ICT-markets/GDP	
			Gender segregation in sectors		
			Gender segregation in occupations		
				SMEs innovating in-house	
				SMEs involved in innovation cooperation	
Quality of work (accidents)			Accidents at work		
			New forms of work:		
	Part-time workers	Part-time employment	Part time - voluntary - involuntary		
	Hours of work	Annual average hours worked			
		Fixed-term contracts	Fixed term contracts - voluntary - involuntary		
				<u>Proposal</u>: Job mobility among the highly skilled	
INACTIVITY, UNEMPLOYMENT					
	Inactivity rate				
	Labour market flows				
		Total unemployment			
Unemployment rate	Unemployment	Unemployment rate	Unemployment rate		
			Gender abs. unemployment gap		
	Unemployment by educational attainment				
	Youth unemployment	- Youth UE rate - Youth UE ratio	- Youth UE ratio		
Long-term unemployment rate	Long-term unemployment	Long-term unemployment rate	Long-term unemployment rate		

				LTU rate men 25-64: failure to learn new skills	
			Rate of inflow into LTU - adults - youth		
	Time-related underemployment				
Population in jobless households					
PRODUCTIVITY, LABOUR COSTS, TAXES					
Labour productivity	Labour productivity	Labour productivity	Labour productivity		
	Manufacturing wage trends				
	Occupational wage and earning indices				
		Compensation per employee			
Unit labour cost growth	Unit labour costs	Nominal ULC Real ULC	Real ULC		
	Hourly compensation costs				
Social cohesion, equality of opportunity					
Distribution of income	Distribution of income				
Gender pay gap			Gender pay gap		
			Tax rate on employed labour		
Tax rate on low-wage earners			Tax rate on low-wage earners		
	Poverty				
Risk of poverty rate					
Persistent risk of poverty					

Table A2: Indicator systems about education, training and human resources

Key data (training, transition)[82]	**OECD education indicators 2002**[83]	**Initial education – quality indicators**[84] ***Lifelong learning – quality indicators***	**Key data, ICT data EURYDICE**[85]	**Specific sources**[86]	***EC benchmarks*, concrete objectives**[87]
Context					
Context: **POPULATION**					
Percentage of young people in the population			Age groups 0-9, 10-19, 20-29 - change in numbers - percentage in population - 0-29 by regions		
		Households with internet access		INVEST: Family computer ownership	
Context: **INCOME, EMPLOYMENT STRUCTURE**					
			Average gross monthly earnings - by education level	TFMLL: Average net income of 16+ in paid employment by levels of ed-tr	

[82] 55 (training) + 47 (transition) partly overlapping indicators (overlapping underlined, *transition* in italics); the transition report includes indicators for the Central and Eastern European countries (MEEC), which differ from the indicators presented for EU countries: those indicators are marked with an "*" (only "*" = only MEEC; "(*)" in brackets means MEEC covered besides the EU countries with somewhat differing indicators).

[83] 33 indicators, with numerous sub-indicators

[84] 16 (initial education) + 15 (lifelong learning) partly overlapping indicators (including some sub-indicators; overlapping underlined, *lifelong learning* in italics)

[85] 114 (key data) + 11 (new in ICT data) chapters about pre-primary, primary and special education excluded; *new indicators from key data publication on ICT* in italics.

[86] EUROSTAT (2001), Report of the Eurostat Task Force on Measuring Lifelong Learning: Indicative List of Indicators, Annex 2 (indicated by TFMLL).
CVTS2 - Grünewald, U. / Moraal, D. / Schönfeld, G. (2002), Betriebliche Weiterbildung in Deutschland und Europa. Schriftenreihe des BIBB (Draft-Version; indicated by CVTS2).
OECD, Investment; see OECD/CERI (1998), Human Capital Investment. An International Comparison. Paris: OECD (indicated by INVEST).
OECD, Transition, 14 Indicators; see OECD (2000), From Initial Education to Working Life: Making Transitions Work. Paris, especially Table 2.1a-b, 167-169: OECD; see also Sweet, R. (2000), A Comprehensive Framework for Indicators of the Transition from Initial Education to Working Life: Perspectives from the OECD Thematic Review. International Workshop on Comparative Data on Education-to-Work Transitions. Paris, 21-23 June 2000. Paris (Download: http://www.mzes.uni-mannheim.de/projekte/catewe/workshop/papers.html > Sweet-paper; (indicated by TRANS).

[87] 6 draft benchmarks (*benchmarks* in italics), 33 draft indicators; indicators included in both systems underlined.

Wage earners among the employed					
					Proportion of self-employed in various sectors of the knowledge economy (particularly age group 25-35)
			Employees with insecure jobs - by age groups - by education level	TFMLL: Employees with insecure jobs - by age groups	
			Higher education graduates: Occupations by age groups		
					Proportion of teachers, researchers and academics from other EU countries employed at different educational levels
			Teachers as a percentage of total active population		
Context: **UNEMPLOYMENT**					
			Change in unemployment rate - by age groups - by member state		
			Unemployment rates - by age groups - 25-59 by level of education, gender - higher education graduates by age groups		
				TRANS: Ratio of the unemployment rate among 15-24 year-olds to the unemployment rate among 25-54 year-olds	

Context: **ATTAINMENT IN EDUCATION/TRAINING**					
Attainment levels (ISCED) in the population - * by age groups - comparison of ISCED 3 between age groups - attainment of at least ISCED 2	Attainment levels of the population		People without upper secondary education in population - by age groups	TFMLL: People without upper secondary education in population - by age groups INVEST: Population 25-64-y by highest completed level of education (HC stock) - percentage point difference between 25-34-y and 45-54-y olds - gender difference - educational attainment of parents	Percentage of population aged 25 to 64 having completed at least upper secondary education
				INVEST: Average number of years of schooling 25-64-y pop (HC stock)	
				INVEST: Adequate threshold of adult literacy (IALS) - by age groups - by sectors - by educ. Attainment	
				INVEST: Market value of HC, based on earnings differentials between HC attributes	
			Tertiary education graduation rates - by age groups	TFMLL: People 35-59 with tertiary education qual - by age group	
	Attainment levels of the labour force				
	Labour force participation by attainment levels				

Context: **BASIC STRUCTURE OF EDUCATION/TRAINING SYSTEM AND FINANCING**					
			- Number of pupils, students - proportion pupils, students in 0-29 age group - pupils, students in compulsory school age (number, proportion in p-s)		
	15-29-y Expected years in education, employment, non-employment				
	School expectancy and enrolment rates			Expected years of schooling - of tertiary education	
			Participation in ed-tr of young people		
			Pupils, students by level of education		
			Students in tertiary education - proportion of all p-s - by regions - trends in numbers		
			Certification at end of programmes - general lower secondary or compulsory ed. - general upper secondary ed. (qualitative)		
Basic financial indicators					
	Educational expenditure/ GDP	*Educational expenditure/ GDP*		INVEST: Educational expenditure/ GDP	*Public expenditure on education as a percentage of GDP*
	Distribution of public-private investments in education				
Context: **EDUCATION/TRAINING POLICY STRUCTURE**					
		Parent participation	Parent representation in compulsory education - national bodies - school bodies (qualitative)		

Involvement of regional/local bodies in objectives, funding determination for VET					
			Autonomy of public schools - primary - secondary (qualitative)		
		Monitoring: publication of results (qualitative)	Monitoring: - preparation of schools plan - publication of results (qualitative)		
			Policy for ICT - documents - bodies responsible - implementation schedule - purchasing (qualitative)		
			Objectives in ICT policy		
		Strategies for lifelong learning (qualitative) *- comprehen-siveness* *- coherence*			
		<u>Proposal</u>: Coherence of supply to objectives, providers, demand *- elements strategic plans covered* *- coverage of demand*			
		<u>Proposal</u>: Counselling and guidance			
		Proposal: Accreditation and certification			

Input

Input: **FINANCIAL**

<u>Financial indicators (overall)</u>

	Total public expenditure on education				
	Educational expenditure per student	Educational expenditure per student		INVEST: Educational expenditure per student - relative to GDP/capita	

					Increase in per capita investment in human resources (structural indicator)
				INVEST: Spending by enterprises on training CVTS2, TFMLL: - expenses of enterprises for CET - cost training/cost work ratio - cost training/ personnel ratio - cost training/ participants ratio - cost training/ training hours ratio TFMLL: Individuals reporting that their employer provides free or subsidised ed-tr Individuals 16+/25+ who received VET over past year paid for by employer	
	Public subsidies for support of students/ households				
			Registration and tuition fees at tertiary level (qualitative)		
			Grants and loans for undergraduates (qualitative)		
	Current expenditure – capital expenditure				
			Purpose of specific ICT funds - by ISCED		
ESF funds for training				INVEST: Spending on public labour market programmes	
			Budgets for ERASMUS students		
Financial indicators (material)					
	Material expenditure - capital - oth.current exp				

	Availability of computers - at school - at home Students/ computer at school	Students/ computer at school	*Number of pupils/computer with internet* *- by ISCED*		
Financial indicators (personal)					
	Personal expenditure - teachers' compensation - other staff				
Input: **LEARNERS (PROVISION OF LEARNING OPPORTUNITIES)**					
Provision (participation) in initial education					
(*) Participation by ISCED levels					
		Participation in pre-primary education		TFMLL: Participation in pre-primary education	
(*) Participation ISCED 3 general vs. VET	Participation in secondary education - ISCED programme destination - type of programme		Participation in secondary education, general vs VET - lower secondary - upper secondary - upper secondary by regions		
			Places of admission for tertiary education, limitation and selection (qualitative)		
* *Participation in tertiary education*	Entry rates in tertiary education	Participation in tertiary education		TFMLL: Participation rate by age in formal tertiary education	Participation in tertiary education
					Increase in number of entries into mathematics, science and technology courses (upper secondary advanced levels and tertiary levels, by gender)
					Proportion of undergraduate / postgraduate students and researchers continuing their studies in another country

VET participation				TFMLL: Participation in VET - by ISCED - programme providing full set of skills for a given occupation	
Breakdown by gender - VET participation by ISCED levels					
				TFMLL: Unemployed 16+ who received VET over past year Unemployed with VET over past year to improve skills and job prospects	
					Percentage of students and trainees within ECTS or EUROPASS and/or obtaining diploma/ certificate supplement
Provision (participation) in adult/continuing education					
	Participation in CET of adult population	*Participation in ed-tr 25-64-y*		TFMLL: Participation of 30+ by attainment and gender Individuals 25+ who have received VET over past year Individuals with VET over past year to improve skills and job prospects INVEST: Employee participation in job-related training - by different groups - average duration	Percentage of the population between 25 and 64 participating in education and training (structural indicator)
				TFMLL: Proportion of students 30+ y in formal tert ed; Median age of students in formal tert ed.	

				CVTS2, TFMLL: - Provision of CET by enterprises - Participation rate of employees in CET - hours of participation of employees (amount, duration, training/work)	Percentage of working time spent by employees on training per age groups
				CVTS2: - Enterprises not providing CET (reasons)	
					Percentage of adults with less than upper secondary education who have participated in any form of adult education or training, by age group
				TFMLL: Early school leavers - People 18-24-y with maximum lower secondary ed-tr, and not in ed-tr	Proportion of the population aged 18-24 with only lower secondary education and not in education or training (structural indicator) *Early school leavers neither in education nor in training*
Input: **TEACHERS, MANAGERS, ETC.**					
	Salaries of teachers		Salaries of teachers (MIN, MAX)/GDP per capita: - primary - lower secondary - upper secondary		
	Teachers - teaching time - working time		Teachers - working part-time, ISCED levels - age distribution - gender - age of retirement - older teachers		
					Shortage/ surplus of qualified teachers and trainers on the labour market

		Education and training of teachers	Initial education of teachers in general education, duration and level: - ISCED levels		
					Progression in number of applicants for teachers'/ trainers' training programmes
					Increase in number of qualified teachers in MST (secondary level)
					Percentage of language teachers having participated in initial training or in-service training courses involving mobility providing direct contact with the language/culture they teach
		Continuing ed-tr of teachers			Percentage of teachers/trainers who follow continuous professional training
					Continuous training of teachers in areas of emerging skills needs
			ICT courses in teacher education - by ISCED		
			ICT in teacher education *- share* *- hours* *- desirable ICT skills defined*		
			Percentage of teachers who have received ICT training *- by ISCED*		Percentage of teachers that have been trained in ICT use in schools
			Specialised ICT teachers (qualitative)		
Input: **INSTRUCTION, CONTENT, COMPETENCIES**					
			End of compulsory education		
			Parameters of		

			school year - dates of return - holidays (qualitative)		
			Annual instruction hours in secondary general education - lower - upper		
	Intended instruction time 9-14-y				
			Hours allocated to compulsory subjects, - lower secondary general education (13-y) - upper secondary general education, science section (16-y)		
Time devoted to mother tongue					
Time devoted to foreign languages					
			Availability of foreign languages, ISCED		
			Foreign languages learned - by languages - numbers of foreign lang. - by ISCED	TFMLL: Foreign languages - which ones learned most - percentage of pupils learning them	
			Inclusion of ICT in curriculum - by ISCED - objectives defined in the curriculum, upper sec. gen. (qualitative)		
		Approaches to ICT in the curriculum (qualitative)	Approaches to ICT in the curriculum (qualitative) - by ISCED		
			Hours recommended for ICT subject		

					Percentage of education and training institutions providing counselling and guidance for setting up a business
Process (variables influenced by behavioural contingencies)					
Process: **BASIC PROCESS CHARACTERISTICS**					
	Educational expenditure per service category				
	Class size Students/ teaching staff				
	Classroom and school climate				
Process: **ICT USE**					
	Use of computers - at school - at home				
			Teachers who use ICT in classroom *- by ISCED* *- reasons for not using ISCED 2-3*		
			Average periods during which primary teachers use ICT in classroom		
					Percentage of learning sessions in teaching and training institutions in which ICT is used
					Percentage of pupils and students using ICT in their studies
Process: **SPECIFIC PARTICIPATION INDICATORS**					
Overall participation by age groups, end of compulsory schooling					
** Profile by yearly age groups* *- Participation in education-training*					

			Participation rates at end of compulsory education	TFMLL: Participation in formal education by age, with reference to end of comp. School (n-1, n, n+1, n+2, n+3)	
				TRANS: Per cent not in education one year after the end of compulsory schooling	
VET participation indicators					
VET participation by age groups					
VET participation by social background				TFMLL: People 16-19-y in ed-tr by attainment level of head of household	
** VET ISCED 3 participation by vocational groups*					
Length of VET programmes					
Breakdown by gender - VET venue - contact with work environment - formal opportunities on VET-ISCED 3 for continuing with training in higher education, streams - participation 25-34 in VET programmes				TFMLL: Breakdown of VET participants - by gender - by venue	
Participation in work-based learning situations					
Participation in alternance or apprenticeship programmes	Enrolment in combined school and work-based programmes				
Profile by yearly age groups *- Participation in mixed situations of ed-tr and employment*					
VET programmes held partly in work environment					

					Percentage of students and trainees in initial training benefiting from placement arrangements (éducation en alternance)
Place of VET training (ed-tr establishment, enterprise)					
Degree of contact with work environment in ed-tr establishments - at least 25% at work environment - level of funding by enterprise				TFMLL: Participation in VET programmes with at least 25% at work	
Apprenticeship indicators - number, percentage - time spent in work environment - wages of apprentices - opportunities for continuing in education - gender - level of funding by enterprises				TFMLL: Participation in apprenticeship programmes	
Participation in tertiary education					
			Participation by yearly age groups in tertiary education		
			Women students in tertiary education		
International mobility experience					
					Number and distribution of EU and non-EU students and trainees in education and training
	Foreign students in tertiary education				
					Proportion of national students and trainees carrying out part of their studies in another EU or third country

			Tertiary education students studying abroad		
Process: **CONDITIONS OF EDUCATION/TRAINING PATHWAYS (PERMEABILITY)**					
Formal opportunities at VET-ISCED 3 for continuing with training - general education, conditions of access, levels - higher education, stream - opportunities by training venue				TFMLL: Participation in VET programmes ISCED-3 with opportunities for - continuing in ed-tr - continuing in general education (by conditions, levels)	
				TFMLL: Participation in VET programmes ISCED-3 or 4 with theoretical access to higher education	
				CVTS2: - Observation of future demand for qualifications by enterprises - Observation of qualifications and CET demand of employees - Enterprises having a CET plan (reasons for not having) - Enterprises having a CET budget - Evaluation of CET by enterprises (methods)	
		<u>Proposal</u>: *Access to lifelong learning* *- opportunities for non-traditional students* *- linkages and pathways through system* *- accreditation and certification mechanisms* *- access to non-formal education* *- informal learning opportunities*			

Process: **ELABORATED PROCESS MEASURES (CAUSAL FACTORS)**					
	Reading literacy - variation by schools				
	Reading literacy - variation by status of parents				
			Participation in tertiary education by education of parents		
	Reading literacy - variation by place of birth, home language				
Output					
Output: **COMPLETION OF PROGRAMMES, DROP OUT**					
	Upper secondary graduation rate	Completion of upper secondary education 22-y	Completion of upper secondary education 22-y - by gender	TRANS: Apparent upper secondary graduation rates	
				TRANS: Per cent of 20-24-year-olds whose highest level of education is lower secondary school (ISCED 0,1,2)	
	Tertiary education graduation rate		Tertiary education graduation rates - by gender - young age groups	Per cent of 25-29-year-olds with tertiary qualifications	
		Drop-out rate: early school-leavers			
ISCED levels of young/old cohort					
					Number of graduates (ISCED 5 and 6) in Mathematics, Science and Technology
	Graduates by field of study	*Tertiary S&T graduates/young population*	*Tertiary graduates by field of study - by gender*		
					Increase in number of graduates in Mathematics, Science and Technology, by gender

					- Relative ratio of male/female graduates in Math- Sci-Techn
Output: **ACHIEVEMENT**					
	Reading literacy 15-y	Reading literacy		TRANS: Per cent of 16-25-year-olds at document literacy level 4/5, 1994-5	Literacy attainment levels (PISA)
	Math literacy 15-y	Test results Math *Numeracy 15-y*			Numeracy/ Mathematics attainment levels (PISA)
	Science literacy 15-y	Test results Science *Science literacy 15-y*			
	Civic knowledge and engagement 14-y	*Civic knowledge - content knowledge - interpretative skills*			
	Attitudes and experiences concerning use of information technology				
		Foreign languages - attitudes - self-assessment			
					Percentage of pupils and students who reach a level of proficiency in two foreign languages
		(Proposal): Learning-to-learn skills			Learning-to-learn attainment levels
Output: **MOBILITY**					
Placements in Leonardo mobility measures					
			ERASMUS student mobility: students in exchange programmes - numbers - proportion		
					Percentage of graduates obtaining joint degrees in Europe

Outcome					
Outcome: **GENERAL INDICATORS**					
		Participation in elections			
		Civics: attitudes towards foreigners			
Outcome: **TRANSITION, EMPLOYMENT, UNEMPLOYMENT OF YOUNG PEOPLE (AGE)**					
Transition					
Employment status of young people leaving education by ISCED	Education and work status of the young population Situation of youth population with low levels of education				
Profile by yearly age groups *- Development of status between ed-tr and employment*					
** Percentage of inactive and not in ed-tr* *Profile by yearly age groups*					
Employment					
				TRANS: Employment to population ratio, 20-24-year-olds	
(*) Employment rate *Profile by yearly age groups*					
				TRANS: Per cent of non-students employed, age 20-24	
Concentration of young people's employment in occupations					
Concentration of young people's employment in sectors					
Unemployment					
(*) Unemployment rate *(*) Profile by yearly age groups*					

Unemployment ratio *(*) Profile by yearly age groups*				TRANS: Unemployment to population ratio, - 15-19-year-olds - 20-24-year-olds	
				TRANS: Non-student unemployed as a per cent of all 15-19-year-olds	
				TRANS: Per cent unemployed for six months or more - of unemployed 15-19-year-olds - of unemployed 20-24-year-olds	
				TRANS: Ratio of low qualified 20-24-year-olds' share of total unemployment to their share of total employment	
Outcome: **OVERALL EMPLOYMENT, UNEMPLOYMENT (POPULATION)**					
				INVEST: Employment/ population ratio, - by educational attainment	
					Number of researchers and engineers
					Increase in number of scientists and engineers in society, *- by gender*
				TFMLL: Fixed-term or short-term employment by educational attainment	
Fixed-term contracts					
Involuntary fixed-term contracts					
Fixed-term contracts among the newly employed					
Involuntary part-time jobs					

Vulnerability of employment					

				TFMLL: Unemployment 25-59-y by level of ed-tr	
				INVEST: Unemployment expectancy, - by educational attainment	
Vulnerability to be unemployed					
Outcome: **IMPACT, INCOME, RETURNS**					
				TFMLL: Employed - reporting that formal skills are needed for present type of work - reporting that formal ed-tr contributes a lot or a fair amount to their present work.	
				TFMLL: Individuals with VET over past year to improve skills and job prospects and find it very useful Unemployed 16+ with VET over past year to improve skills and job prospects and find it very or quite useful	
Development of relative wages of young people					
				INVEST: Relative earnings, - by educational attainment	
				INVEST: Correlation with earnings of - literacy - education - labour market experience	
				INVEST: Impact of enterprise-based training	
				INVEST:	

				Impact of public labour market programmes	

	Returns to education - private and social RR - links human capital - economic growth			INVEST: Annual rate of return to education - fiscal and private RR to education	
				TFMLL: Individuals reporting that they have the skills to do a more demanding job	

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